Southwestern Medicine

OFFICIAL ORGAN OF
ARIZONA STATE MEDICAL ASSOCIATION
NEW MEXICO MEDICAL SOCIETY
EL PASO COUNTY (TEXAS) MEDICAL SOCIETY
THE MEDICAL AND SURGICAL ASSOCIATION
OF THE SOUTHWEST

VOL. XVII. NOVEMBER, 1933 No. 11

ANNUAL SUBSCRIPTION $2 SINGLE COPIES 25 CENTS

Entered at the Postoffice at Phoenix, Arizona, as second class matter.
"Acceptance for mailing at special rate of postage provided for in section 1103, Act of October 3, 1917, authorized March 1, 1921."

ENDOCRINOLOGY: ITS VALUE TO THE CLINICIAN

CLAIR L. STEALY, M. D.
Rees-Stealy Clinic,
San Diego, Calif.

(Read before the New Mexico Medical Society, at its Fifty-First Annual Meeting, at Roswell, N. M., May 18-20, 1933.)

The field of endocrinology touches every branch of medicine. Sufficient clinical and experimental evidence indicates that the practitioner should be aware of endocrine disturbances. It is my aim to discuss briefly some of the more important phases of the present-day knowledge of the endocrinopathies as they apply to the practice of medicine.

In the years immediately following 1860, Louis Pasteur verified the earlier work of Schwann in demonstrating to the scientific world that the souring of wine was due to a microscopic organism. By 1878, he added his influence to the theory that all disease is caused by the growth of micro-organisms within the body. Koch announced the discovery of the tubercle bacillus in 1882 and formulated the Koch postulate for infectious disease. Coincident with these milestones, came the perfection and development of the microscope, the institution of courses in bacteriology in our medical schools, and, finally, the theory of focal points of infection as the cause of disease.

Under the leadership of Billings and others, this theory of focal infection as a cause of disease has overshadowed the minds of many practitioners for the last forty or fifty years. However, some of us have not been satisfied with this explanation and have become discouraged with the inability to get satisfactory results from treatment based upon such hypotheses.

In the year 1849, Addison described tuberculosis of the adrenal glands and gave a detailed description of the symptom complex which is known by his name. In 1840, Basedow described fully the syndrome of exophthalmic goiter, certain features of which had been mentioned by various men during the sixty or seventy years preceding. This was the beginning of definite work in the field of endocrinology. The work of Kendall and others on the chemistry of the secretion of the thyroid gland, was a distinct step forward in the study of endocrinology. During the last decade the field has developed so rapidly, both from the chemical and clinical standpoints, that, still, under the influence of the theory of infectious disease, we have not become aware of the part which diseases of the glands of internal secretion and their resulting dysfunction play in human ailments.

In the field of pediatrics, marked overweight, either at birth or during childhood; rates of growth either above or below the normal; abnormal age of dentition; irregularity of the teeth; tonsillar hypertrophy, mental retardation, behavior problems and precocious or delayed sexual development, may indicate a disturbance of some endocrine gland. This disturbance may have its origin in the glands themselves, or may represent a disturbance in the glands secondary to some other disturbance in the body.

In the field of urology, evidence has been offered to show that impotence and prostatic hypertrophy may have their basis in thyroid, pituitary, and testicular dysfunction. In the fields of otolaryngology, surgery, neuropyschiatry, obstetrics, and gynecology, evidence both clinical and experimental has proved that glands of internal secretion must be considered as causative or influencing factors in the diseases encountered.

In the field of the internist, one can best state the situation in the words of Lawrence and Rowe, who, after studying 4000 cases, having in mind especially organic disease versus endocrine disease, stated,

"We believe that endocrine disease and non-endocrine disease simulate each other so closely that only by correlating complete clinical and laboratory study is differentiation possible. And if clinical examination discloses evidence of organic disease, it should take precedence over any evidence of metabolic disturbance in determining the diagnosis."

Therefore, the practitioner should become familiar with the effects of endocrine disturbance in his special field. By so doing he will increase his diagnostic ability as well as add to his therapeutic armamentarium. As Hutton so ably has put it, "Every practitioner, regardless of his specialty, is confronted with endocrine disorders. His refusal or failure to recognize them in no way aids either him or his patients."

According to our present knowledge, endocrine disorders are produced by either an oversecretion or undersecretion of the respective hormone or hormones. There are some indications of changes in the secretions themselves, but such changes have not been proved. The symptoms vary from a well-recognized syndrome to a group of indefinite and ill-defined symptoms, according to the degree of imbalance in the gland itself and the degree of its interaction with other glands of internal secretion.

THE THYROID GLAND

The only secretion or hormone of the thyroid gland known at the present time, is thyroxine. That there may be other hormones as yet not discovered, is indicated by the fact that the whole gland is more effective in treatment than is thyroxine alone; this fact is especially true in the treatment of hypothyroidism in children. The secretion of the active hormone is in some way dependent upon the iodine content of the gland, but just what role iodine plays in the hypersecretion or hyposecretion of the thyroid has not yet been proved.

The symptoms of a marked degree of hypersecretion of this hormone are well known to all of us in the form of hyperthyroidism and Basedow's or Graves' disease. In mild cases, however, the symptoms are often confusing, thus leading erroneously to diagnoses such as chronic nervous exhaustion, neurosis, psychosis, tuberculosis, or to the placing of the responsibility for the symptom complex on some hidden focal point of infection.

The symptoms of marked degrees of hyposecretion of the gland are quite clear cut, but here again the milder cases may present a very confusing symptom complex and lead to diagnoses similar to those made in mild cases of the hyperfunctioning gland.

Rowe and Lawrence found that 59 per cent of their cases of proved thyroid dysfunction gave exhaustion as the chief complaint and that 21 per cent gave it as a marked symptom.

THE PANCREAS

The only definitely known hormone of the pancreas at the present time is insulin, which comes from the islands of Langerhans. Other hormones from the pancreas are suspected, but their presence is not yet proved. The disease entity and symptom of a hyposecretion of insulin had been recognized clinically for many years before the brilliant work of Banting and his group definitely established the relation of insulin to the disease. The symptoms of marked hypersecretion of this hormone may be seen in cases of overdosage of insulin in the treatment of diabetes. This observation has led to the recognition of hyperinsulinism as an entity in cases of tumors of the pancreas. It may also be a factor in those cases which in the late afternoon present an indefinite group of symptoms, such as weakness, exhaustion, nervousness, tremor, and a sense of apathy associated with a low blood sugar. Such patients at all other times are apparently in the best of physical condition. That such symptoms are definitely due to hyperinsulinism is not proved, however; for it has been shown that other glands of internal secretion, especially the suprarenals, the posterior pituitary, and the thyroid, play some part in carbohydrate metabolism.

THE PARATHYROID GLAND

The only known secretion of the parathyroid gland is parathormone, isolated by Collip. This hormone has been definitely linked with calcium metabolism. Undersecretion of this hormone causes the symptom complex known as tetany, which frequently occurs in children and following the destruction of the parathyroid glands either by disease or accidental removal. The use of parathormone in adequate dosage, combined with calcium therapy, completely controls the disease.

Hypersecretion of the hormone has recently been shown to be connected with the disease entity known as osteitis fibrosa cystica. The removal of the hypersecreting gland or tumors of this organ which may be causing the hypersecretion, with the resultant effect upon calcium metabolism and other glands, causes an immediate regression of the disease.

Further evidence has been reported by Berman to show that all bone metabolism is dependent upon an interrelation between the parathyroid, the suprare-

nals, and calcium metabolism. He cites eighteen cases of Paget's disease in which sixteen of the patients obtained relief of symptoms by the use of the adrenal cortex hormone.

THE THYMUS GLAND

No definite hormone has been isolated from the thymus gland, although clinical evidence has shown that there is a correlation of the thymus, the thyroid, the suprarenals, and the gonads. Marine and Manley suggest that the thymus gland may have some inhibitory effect upon the prepubertal sex organs, as removal of the thymus in young animals causes sexual maturity. Nitschke claims to have isolated two active hormones, one of which lowers the calcium content of the blood and the other, the phosphate content of the blood. Carrol Eugene Cook has produced evidence to prove that the thymus plays some part in the development of criminal tendencies and behavior problems. At the present time, however, no definite evidence has been advanced, from either clinical or experimental standpoints, to indicate the presence of a secretion from this gland.

THE SUPRARENAL GLANDS

Up to the present time, two hormones have been recovered from the suprarenal glands. The first hormone isolated, adrenalin, is obtained from the medullary portion of the gland and has been in use for a number of years. It is a stimulant to the sympathetic nervous system, but it is not indispensable to life. Experimentally there has been no evidence to indicate that this hormone has any relation to the sex glands. It is apparently antagonistic to the hormone of the pancreas and influences carbohydrate metabolism. This is manifested by its ability to counteract hyperinsulinism by mobilizing liver glycogen.[2] There is also some evidence to suggest an interreaction with the parathyroid and thyroid glands.

The second hormone obtained from the cortex of the adrenals is a recent discovery and is known as cortin. It has been found that death soon follows the destruction or removal of the suprarenal glands, but, by the injection of this hormone, it is possible to keep animals alive indefinitely following adrenalectomy. Clinically, cortin has been used by Hartman, and Swingle and Pfiffer, in the treatment of Addison's disease, with excellent results.

The diagnosis of Addison's syndrome is not difficult. A mild hyposecretion of the hormone, however, produces an indefinite syndrome characterized by asthenia, fatigue, loss of weight, gastric disturbance, hypotension, and infrequent menstrual cycle. All of these symptoms may be associated with other disease conditions, but the possibility of their connection with a deficiency of this hormone emphasizes again the importance of keeping in mind the possibility of endocrine disturbance if no organic pathology is demonstrable.

Hypersecretion of the cortex, which is usually associated with tumors of the gland, gives rise to sexual precocity and other changes in sex development. In adult females such hypersecretion may give rise to masculine characteristics as shown by male distribution of the hair and atrophy of the breasts and uterus. The development of such characteristics should make one suspicious of the presence of an adenoma of the suprarenal.

THE PINEAL BODY

No hormone has been isolated from this gland, but experimental evidence has shown that the removal of this body in animals hastens the development of the reproductive organs. This would be in accord with the fact that the pineal body begins to atrophy at the age of seven and is usually almost completely absorbed by the age of puberty.

THE SPLEEN

From time to time it has been thought that the spleen was the source of some secretion, but, so far, sufficient evidence has not been produced to establish this fact.

THE TESTICLES

The question as to whether or not there is a definite testicular hormone has not been settled. However, Moore, Gallagher, and Koch have shown that there is a substance in the testicle of the bull and other animals, which is not obtained from other organs of the body. When this is injected into the caponized fowl, it causes normal growth of the comb. Clinically, recent workers have reported encouraging results from the use of this testicular substances in cases of impotence in the male.[9] From this and other evidence, it appears likely that there is a definite hormone from the testicle which plays some part in disease conditions of the male generative organs.

THE OVARIES

Up to the present time, two hormones have been isolated from the ovary. One, first known as the female sex hormone, is known as oestrin and by the various trade names of theelin, estrogen, amniotin, menformon, progynon, folliculine. It is derived from the graafian follicle, the corpus luteum, the placenta, and the luteal cells. It also may be found in the excretions of the body, especially in the urine

and feces. This hormone has a definite effect upon the size and vascularity of the uterus and upon the vascularity and epithelial structures of the vagina and vulva. These changes apparently do not prepare the uterus for the function of receiving and retaining the ovum. The presence of another hormone is necessary to effect or complete the true menstrual cycle or the pregravid state. This second hormone is known as progestin. This is obtained from the corpus luteum and has the ability to complete the mentsrual cycle to the point at which pregnancy, or, if there is no conception, true menstruation, can take place.

Oestrin apparently has no effect upon the ovary itself, only upon the uterus and vaginal canal. Progestin probably inhibits the formation of new graafian follicles and thus prevents further ovulation, and at the same time prepares the uterus for the reception of the ovum by the formation of nidatory cells. Experimentally, large injections of progestin in animals have been found to result in undeveloped or undersize follicles in the ovary. Experimental work seems to indicate the presence of a balance between these two hormones, any imbalance of which causes a disease syndrome of the menstrual cycle. The symptoms of this syndrome depend upon the direction of imbalance; if oestrin predominates, vascularization of the uterine mucosa follows, with the resultant more or less continuous bleeding; if progestin predominates, the opposite results. And this imbalance may vary in favor of first one and then the other, so that periods of amenorrhea, oligomenorrhea, metrorrhagia, and so forth, may follow one another. This imbalance may also play some part in sterility.

THE PITUITARY GLAND

The pituitary gland, according to our present knowledge, secretes four hormones. Two of these are supposed to come from the posterior lobe and seem to play no part in the reproductive cycle. They apparently affect other glands and the sympathetic nervous system. This is indicated by their effect upon carbohydrates and fat metabolism and also upon smooth muscle. In 1928, Kamm and his co-workers isolated two distinct secretions from the posterior lobes. These substances are now prepared under the trade names oxytocin and vasopressin; also pitocin and pitressin. Oxytocin, or pitocin, has the property of causing the contraction of smooth muscles, especially the uterine muscle. Vasopressin, or pitressin, contains the pressor, diuretic and antidiuretic properties. A combination of the two hormones has the same effect as pituitrin.

Oxytocin, due to its effect on the uterine muscle, can be used in obstetrics to bring on labor, without increasing the blood pressure or stimulating other organs. Vasopressin is used for its antidiuretic effect and its stimulating effect upon the gastrointestinal tract. It is of particular value in cases of postoperative distention during pregnancy, since it can be used without danger of bringing on labor.

The other two known secretions of the pituitary gland are the hormones which have to do with body growth and sexual function, antuitrin G and antuitrin S. They are definitely derived from the anterior portion of the gland, but just how they function is not definitely known. However, it is known experimentally that the product known as the growth hormone, or antuitrin G, is concerned with the body growth and is antagonistic to the sex factor. Evans and his co-workers as early as 1921 demonstrated the power of this hormone by the production of acromegaly in the dog. How it controls other glands and the general effect of interglandular reaction upon the entire body, are problems to be solved by further experimental and clinical work.

The sex, or gonad-stimulating, hormone, is known as antuitrin S, prolan or follutein. Many observers feel that this hormone is again divided into two different hormones, the oestrin-stimulating hormone, called prolan A by Aschheim and Zondeck and rho I by Wiesner, and the luteinizing hormone, called prolan B by Aschheim and Zondeck and rho II by Wiesner. Both prolan A and prolan B must be present to complete the sex cycle. Aschheim and Zondeck found a great difference in the amount of the gonad-stimulating hormone of the anterior pituitary in the urine of pregnant and non-pregnant women. Based upon this observation, they worked out a test for the diagnosis of early pregnancy by the stimulating effect of the hormone upon the ovaries and vaginal canals of female mice. By this method it is possible to diagnose early pregnancy five days after conception has occurred. Friedman has modified this test by using female rabbits in place of mice and the test has been found to be from 95 to 100 per cent correct ten days after conception has taken place. This contribution from the field of endocrinology is a most valuable diagnostic aid to the clinician.

THE INTERRELATION OF THE ENDOCRINE GLANDS

There is a great deal of conflicting evidence at the present time regarding the stimulating effect of one gland upon the other and the effects of dysfunction of these glands upon the body in general. However, it is evident that there is a definite relationship between the gonads and the pituitary, the pituitary

and the thyroid, the gonads and the thyroid, and the suprarenal and all glands. The pituitary seems to act as the controlling switchboard for them all.

ENDOCRINE THERAPY

Therapy in endocrine disturbance is based upon two opposite factors—hypersecretion or hyposecretion of the gland or glands involved. In cases of hypersecretion, the aim is to decrease the amount of secretion by partial or complete destruction of the gland. This is accomplished by surgical removal, or destruction by x-ray. The line of attack in cases of hyposecretion is that of replacement of the secretion. This is accomplished by administration of necessary hormone by mouth or by hypodermic injections, or by the transplantation of the gland.

The results in correction of oversecretion of a given gland by the methods noted have been very gratifying. Results of correction of undersecretion have been spectacular in some instances and disappointing in others. It is only as our understanding of the relation of the glands to one another, and their effect upon the body as a whole, is increased and clarified, that we can hope to secure definite results.

CONCLUSION

In conclusion, I wish to state again that I have attempted to give in this paper only a brief resume of the more important points in the field of endocrinology as they pertain to clinical medicine. I have drawn freely from the work of Mazer and Goldstein on "Clinical Endocrinology of the Female," which I can recommend most highly for its clear exposition of the known and unknown facts of this field, as well as from other articles which have appeared in the current literature, and from my own clinical experience. I feel that the field of endocrinology is destined to play a very important part in the future of medicine, but I believe that it is up to the clinician to become aware of the possibilities already opened to him by the research worker. As Aub stated in 1932, the biochemist and the experimental research worker have left the clinician far behind. The clinician can, if he will, free himself from the bugbear of the all-inclusive theory of organic disease and derive much help both from a diagnostic and therapeutic standpoint, from the field of endocrinology.

REFERENCES

1. Berman, Louis: The Endocrine treatment of Paget's disease. Endocrinology, 16:109-119, March-April, 1929.

2. Britton, S. W.: Evidence of the chief function of the adrenal cortex. Endocrinology 16:633-4, Nov.-Dec., 1932.

3. Cook, Carroll Eugene: quoted by Hutton, J. H.

4. Hutton, James H.: Relation of endocrine therapy to general medicine. Illinois M. J. 62: 88-93, July, 1932.

5. Kamm, Oliver; Aldrich, T. G.; Grote, I. W.; Rowe, L. W.; and Bugbee, E. P. Quoted by Snell, A. M.

6. Lawrence, C. H.; and Rowe, A. W.: Studies of endocrine glands; analysis of 500 cases simulating endocrine disorders. Endocrinology, 13: 109-143, March-Apr. 1929.

7. Marine, D.; and Manley, O. T. Quoted by Mazer and Goldstein.

8. Mazer, Charles; and Goldstein, Leopold: Clinical Endocrinology of the Female. W. B. Saunders Co., 1932.

9. McCullagh, E. P.; McCullagh, D. Roy; and Hicken, N. Fred: Diagnosis and treatment of hypogonadism in the male. Endocrinology 17: 49-63, Jan.-Feb. 1933.

10. Moore, Carl R.; Gallagher, T. F.; and Koch, F. C. The Effects of extracts of testis in correcting the castrated condition in the fowl and in the mammal. Endocrinology, 13: 367-374, 1929.

11. Nitschke, A. Quoted by Mazer and Goldstein.

12. Snell, A. M.: Some recent advances in endocrinology. Minn. Med. 13: 8-14, 1930.

DISCUSSION

DR. F. D. VICKERS (Deming, N. M.): Dr. Stealy's paper was very interesting. About the time we get everything fixed up and figure all troubles are infectious, something comes along to upset it. I remember a case I had some time ago—a little, slight woman, no picture of myxedema, who had been to many physicians and finally found a surgeon who was about to take out her spleen. After being put on thyroid at some clinic she improved rapidly.

The therapeutic department is far behind the experimental department. Manufacturing firms put out formulas that cure everything, but thyroid is about the only one we get any definite effect from, so they put thyroid in all formulas. Probably many of these gland products given by the stomach are inert. I presume time will figure out much for us along this line.

DR. R. O. BROWN (Santa Fe, N. M.): In my opinion endocrinology is one of the coming features in medicine. I have had a rather interesting experience in connection with a school up near Santa Fe designed originally for boys not up to par physically. The only illness boys are allowed to have when they enter is asthma. We have them under very close control. Along with them, we have had quite a number of boys who have been under the care of endocrinologists anywhere from St. Petersburg to San Diego and Santa Barbara. Some of them, it is interesting to say, have come out of their difficulties in splendid shape, stand first in school work, and, from the shape of their bodies, distribution of hair, and things of that kind, convinced me very thoroughly there is a great deal to

endocrinology. From my own practice, too, I think that endocrinology is on its way to a wider recognition.

DR. G. WERLEY (El Paso, Texas): I am very glad to have heard this paper by Dr. Stealy. The points he has made are certainly interesting. His point that focal infection is run to death, is very well taken, and I hope the epidemic is passing. I recall a patient who told me of his experiences with doctors: one looked at his teeth and said: "I can't do a damn thing for you—your teeth should come out;" another told him his appendix should come out; another, his gallbladder, and so on.

I have been interested for a long time in endocrinology and took the journal from the time it was founded until about four years ago, when I quit it because I feared I would go crazy if I kept on reading it, so many different claims were made and then some one proved the contrary. The points Dr. Stealy makes, however, are told in the plain language of the day which any man can understand. I have had an old lady patient who had a bad heart, edema, mitral murmur, and so forth. Certain features of her case were rather mystifying. I could not get rid of all the edema, and she had such a sore belly it could not be touched any place, and her blood pressure went down so low you could not take it. I thought she was going to die and told her folks to have her relatives come. Then it occurred to me that glandular therapy might help. I gave her two grains of suprarenal gland three times a day and she began to pick up. I think we should take more interest in the endocrine glands. A good endocrinologist is an asset to any community. We should have some one in El Paso to study these cases thoroughly and know enough about them to recognize these conditions. Hypothyroidism is often completely overlooked. I remember in 1915 there was an old Mexican woman who would come to the office, sit down and talk and talk—no one else could get in a word. She would come wearing a heavy coat in hot weather, all bundled up, and act as if she was very cold. I thought she was off mentally. Her feet were swollen all of the time, there was albumin in the urine and, as I did not seem to be able to do anything for her, I hoped she would stop coming. About that time I was writing a paper, to deliver before a medical society, on Hypothyroidism, and one night, while working on the paper, I thought of the old woman and decided possibly hypothyroidism might be the cause of her trouble. I tried to locate her and after much difficulty finally found her sick in bed, the saliva was oozing out of her mouth, her face and lips were swollen, and her whole body was dropsical. When I asked her how she felt, she replied she felt so cold it made her teeth ache when she breathed through her mouth. The case became very plain to me then and I commenced treatment with thyroid, with rapid improvement. She lived ten years and was able to work.

DR. STEALY (closing): My paper is intended to stimulate interest in the field of endocrinology. In regard to the case Dr. Werley brought out, it is rather a common thing to see cases of hypothyroidism, and frequently cases of hyperthyroidism, diagnosed as heart disease, in which the thyroid gland is the base of the cardiac difficulties. Another common thing we find is that, in a majority of people, hyposecretion of the thyroid gives us overweight. About 46 per cent of the cases of hypothyroidism had overweight. The rest were either normal or underweight. I was always of the opinion that hypothyroidism should always carry overweight, or be associated with overweight, but such is not the case. In my paper I attempted to bring out the facts that are known at the present time. In the question of therapy, and especially therapy of the sex glands, I wish to call attention to an article which appeared in the April 29 issue of the Journal of the American Medical Association, in the editorial section, in which theelin was brought before the Council of Pharmacy for introduction as a proprietary preparation. A study had been made of all the literature previous to the publication of this article and certainly a sane and sensible point of view on the question of sex was given. We do not know how the glands inter-react, just how much secretion is poured out at one time. Any therapy you do with the sex hormone is a hit-or-miss trip in the dark. There is probably only one phase that has proved exceptionally good, and that is the use of anterior pituitary in hypertrophic endometritis with constant bleeding. I have ten cases at the present time in which it has given excellent results where there is no organic pathology present. Be sure there is none present, however, before you start your treatment.

In regard to neuropsychosis—when preparing this paper I picked up a very excellent article stating that it was felt that the glands of internal secretion played an important part in cases of neuropsychosis, and that a number of these patients can be discharged after treatment with glands of internal secretion. Hypothyroidism is not uncommon with these mental cases and frequently, after being sent to asylums and being under treatment with thyroid extract, they are sent back home.

THE MEDICAL CLINICS OF NORTH AMERICA. (Issued serially, one number every other month) Volume 17, No. 1; New York Number, July, 1933; Octavo of 324 pages with 64 illustrations; per clinic year, July 1933 to May 1934, paper, $12.00; cloth $16.00 net; Philadelphia and London; W. B. Saunders Company; Philadelphia; 1933.

The Medical Clinics for August is contributed by the New York physicians and has a wealth of material. Among the subjects which especially interested the reviewer are: Hypertrophic Gastritis; Angina Pectoris; Purpura; The Treatment of the Delirium of Pneumonia with Avertin; Sprue (nontropical); Allergy and Common Cold; Stokes-Adams Syndrome—analyzed by electro-cardiographic and other studies; and Pertussis and Its Treatment with Gold Tribromide.

These clinics afford one of the best channels for keeping up with what leading clinicians are actually doing in practice. O. H. B.

VOMITING IN INFANCY

J. R. LEMMON, M. D., F.A.A.P.
Amarillo, Texas.

(Read before the New Mexico Medical Society at its Fifty-First Annual Meeting, held at Roswell, N. M., May 19, 1933.)

In discussing the common subject of vomiting in infants, I shall arbitrarily consider the upper age limit as being about two years, since we see symptomatic vomiting so commonly at this period.

It is the purpose of this paper to call attention to the most frequent causes of vomiting in early life, to discuss briefly each cause or heading in a general way, and to present several case examples, with diagnosis chiefly in mind.

The following outline should be of value in refreshing our minds as to some of the etiological factors in causing the symptom of vomiting in infancy. This is the classification of Marriott, Dennett, Griffith et al.

1. Over distention of the stomach
   (a) by too much volume of food, with simple regurgitation or "spitting up,"
   (b) by too frequent feedings and overhandling,
   (c) by swallowing air.
2. Improper composition of the food.
3. Parenteral infections.
4. Habit or "nervous" vomiting; rumination.
5. Gastro-enterospasm (so-called "colic") with vomiting.
6. Hypertrophic pyloric stenosis and pylorospasm.
7. Intra-abdominal conditions and miscellaneous:
   (a) appendicitis, peritonitis, obstructions, atresias, etc.
8. Anhydremia.
9. Toxic states; coughing.
10. Intracranial conditions.
11. Recurrent cyclic vomiting.
12. Allergy.
13. Syphillis.

OVER DISTENTION OR OVER LOADING OF THE STOMACH. (a) When a healthy baby with a large appetite nurses too much, we know that it is a normal, easy, effortless procedure for him to spit up or vomit some of the food almost immediately until the remaining volume is suitable to the gastric capacity. This common type of vomiting need not be alarming but should be overcome by reducing the volume or the dilution. A most frequent mistake in infant feeding is to increase the dilution of the milk in case of vomiting and thus increase the overloading of the stomach. In reality the milk should have been made more concentrated. For this purpose one may well use lactic-acid milk or various forms of unsweetened evaporated milk. (b) However, the formula may be all right as to volume and dilution but may be fed irregularly or too frequently. I can cite numbers of cases where all there was to do was simply to put the infant of, say, four months of age, on a four-hour schedule instead of two and one-half or three hours. So watch out: different babies may have different emptying times for their respective stomachs.

(c) All nurslings swallow more or less air during or between feedings. Witness the babe who lies on his back while nursing a bottle and, not being taken up after nursing so that he can belch up the swallowed air, promptly vomits some or all of the feeding; or the hungry baby whose formula is improper and who constantly swallows air by sucking his fingers, and further distresses the mother and doctor by vomiting. This is a very natural procedure if we but think.

IMPROPER COMPOSITION OF THE FOOD. This may vary with the individual case. But generally a feeding too high in fats, as seen in the old-style top-milk or cream mixtures, malted milk, and so forth, may cause vomiting due to the fact that the excess of fats leave the stomach slowly, and thus the little stomach is not completely emptied before the next feeding is put into it. Most pediatricians believe that the carbohydrates in the formula are not so likely to cause emesis. An increased acidity of the stomach may cause vomiting, particularly when lactic-acid or hydrochloric-acid milk formulae are given. In these cases the vomitus is extremely sour and the case is much relieved by changing from the acid milk formula. It is not usually necessary to administer alkalis. Another cause may be from feeding raw milk. The curd of the cow's milk, being tougher than that of human milk and not having been partially digested by boiling, may give trouble. This is relieved by boiling the milk or by using powdered, acidified, or evaporated milk with a more digestible curd as a result. In older children, obviously, spoiled food or unsuitable diet, such as green fruits, pickles, and so forth, may cause emesis.

PARENTERAL INFECTIONS, that is, infections outside of the gastro-intestinal tract, may cause vomiting in infancy. Practically any infection may

be ushered in by vomiting, as, for example, scarlet fever, pneumonia, otitis media, and pyelitis. We should watch for fever and not be too quick to change the formula in case of fever with sudden vomiting. In case there is definite infection, the formula can be weakened safely and therapeutic measures may be instituted, with care not to give medicines that may further upset the stomach.

HABIT OR "NERVOUS" VOMITING AND RUMINATION. Habitual or nervous vomiting is commonly seen in infants and may prove to be alarming. This may be aggravated by handling or playing with the baby. These babies are usually very nervous, thin, and fretful, cry a lot, and often have a neurotic family background. I have seen infants who would spit up their food when changes or additions were first made. As they became older they would use this as a powerful weapon against the overzealous mother, vomiting at will to escape undesired but wholesome foods, until the daily meals became a veritable battle ground between the neurotic and willful child and the mother frantically trying to beg, plead, coax, cajole, bribe, scare, and force food into the secretly exulting and victorious child. This type of vomiting is best handled in the hospital with impartial and trained nurses, together with a very plain explanation to the mother of the underlying psychic cause. In the case of young infants, the regulation thick-cereal feeding will often suffice to break the vicious circle by tenaciously clinging to the gastric mucosa when vomiting is attempted.

Rumination is a habit of forceful or voluntary bringing up of the food, much as a cow would do; it may be held in the mouth, swallowed, or expelled. The cause is probably psychic to attract attention, and so forth. Rumination may cause serious malnutrition. It is often most intractable. Thick-cereal feedings may be tried and often hospitalization is necessary. This type of vomiting must be differentiated from other types with perhaps an organic basis.

GASTRO-ENTEROSPASM (SO-CALLED "COLIC") WITH VOMITING. As the name implies, there is a spasm of the digestive tract accompanied by so-called colic with paroxysmal abdominal pains and often vomiting. "Painful peristaltic contractions may be the result of distention, irrigation, hunger, or an instability of the autonomic system," according to Marriott. The term "hypertonic infant" has been suggested by Haas. There is general spasticity of the skeletal and gastro-intestinal musculature, with screaming and "colic," constipation and vomiting, frequently. These cases have the family exasperated and they are near "nervous wrecks," as some mothers express it. H. T. Nesbit thinks that there is a lowered blood calcium and has obtained good results with calcium therapy. Suffice it to say that the vomiting is controlled by atropine, luminal, cod-liver oil with viosterol, ultra-violet, and diet. These gastro-enterospastic infants with vomiting formerly gave me a great deal of trouble, but with cooperation I am now able to obtain very satisfactory results by energetic and careful treatment. These cases must not be confused with the ordinary hungry infant. Allergy often plays an important part and may have to be investigated if the routine measures fail.

PYLORIC STENOSIS AND PYLOROSPASM. These two conditions are more or less closely associated and may merge one into the other so that differentiation may be difficult. It is my personal belief that a true hypertrophic stenosis is a separate clinical entity from pylorospasm per se; the former being 100 per cent surgical indication, and the latter, or pylorospasm, being distinctly a medical procedure. Some wrtiers do not draw so definite a line but it is my belief that, if we do not definitely distinguish and treat accordingly, the mortality rate will be raised. Therefore diagnosis is very essential. Hypertrophic pyloric stenosis is rather rare. In our series of cases we have found it much more common in males. Persistent vomiting appears first, usually about the second or third week of life and, due to the band-like thickening of the pyloric-ring musculature, very little food gets through, causing projectile type of vomiting. The vomitus may be larger than a single feeding, suggesting that more than one feeding may have been retained; the vomitus being clear in color, as a rule, with little pain or effort. There follow visible peristaltic waves, bombarding the blocked pylorus; often a palpable tumor the size of a pecan; and constipation or obstipation with an occasional scant brown mucous stool. The baby shown progressive emaciation, with pallor, quiet listlessness, scanty urination, dehydration of the skin, with a pinched old-man wrinkled facies. In pylorospasm the symptoms may be as in the true stenosis except that the tumor is not usually present, the emaciation and related symptoms may not be so striking, and there may be occasional diarrhea. Pylorospasm is more functional, stenosis is organic. Esophageal obstruction must be differentiated and is much rarer; the vomiting being smaller in amount and almost immediate. Gastric atresia may occur but usually gives symptoms from the first day of life. I

have seen one such case. The x-ray is valuable in differential diagnosis, it being my plan routinely to x-ray all suspicious cases. This usually clears up all doubt as to whether or not to operate, along with the therapeutic test of medical treatment.

This treatment consists of thick-cereal feedings, phenobarbital (luminal), atropine and intraperitoneal injections of normal saline or Hartmann's solution (physiologic buffer salts), with occasional use of a 2 to 5 per cent glucose added to this solution. No improvement being evident and subsequent roentgenogram being positive of an obstruction or pyloric stenosis, operation by the Rammstedt method is advised and is done as soon as the patient is prepared by the above preliminary treatment. The after care is fully as important as the actual surgery. It is absolutely imperative that these cases be differentially diagnosed and treated early, as death follows if operated or treated too late. The last three of my cases have all been seen too late and were inoperable, no definite diagnosis having been arrived at in time. If one is not sure, let me emphatically urge that competent consultation be used in ample time and our results will be far more happy in this dangerous type of infantile vomiting.

VOMITING IN INFANCY DUE TO INTRA-ABDOMINAL AND MISCELLANEOUS CONDITIONS may be either organic or functional. These conditions need only be mentioned to refresh our minds. We should think of congenital atresias or obstructions of the intestinal tract, peritonitis, appendicitis, acute intestinal obstructions, Meckel's diverticulitis and esophageal atresia, as already mentioned. X-ray is valuable in differentiating esophageal atresias from congenital atresias of the stomach, duodenum and pyloric stenosis. I have had one case of gastric atresia in which a male infant of three and one-half weeks was so emaciated that he resembled a pyloric stenosis. There had been vomiting noticed almost from birth and it was projectile in type. X-ray revealed no barium going through and operation revealed both a congenital hypertrophic pyloric stenosis and atresia gastrica at the pylorus, this latter condition being found at autopsy. This baby was so far gone that we had little hope of recovery, due to the weakened condition from starvation. Death occurred the same day from shock. The acute abdomens with appendicitis, peritonitis, intussusception, and so forth, are all surgical, as we know. The youngest case of ruptured appendix in my experience was in a baby 14 months old. The case had severe nausea and vomiting, distention and rigidity, and was ruptured within a few hours of onset. Recovery followed immediate operation. It should be remembered that appendicitis in infancy, with or without vomiting, may resemble pneumonia. Most intussusceptions in my experience have been fatal, chiefly because diagnosis and surgery were too late. The typical vomiting, with bloody mucous tenesmic stools and paroxysmal cramping pain, with sausage-shaped tumor, can hardly be confused with any other condition except possibly a Henoch's purpura abdominalis, which usually has petechial hemorrhages under the skin in addition to the abdominal signs. I have seen one case of clinical intussusception that recovered without operation. With vomiting due to intra-abdominal conditions, we should operate if in doubt and should do so early, as infants stand early operations well, but late ones hardly at all.

ANHYDREMIA, OR DEHYDRATION, OR DRYING OUT OF THE BODY CELLS, is often accompanied by severe vomiting of an intractable nature. Here we have an upset of the body cell chemistry or the normal fluid balance. Acidosis or alkalosis may be associated. Any condition such as a severe diarrhea in summer may bring about anhydremia or dehydration. The onset is sudden and the course fulminating, with a great loss of weight, dry inelastic skin, sunken eyes, severe vomiting with diarrhea, and finally death from drying out of the "battery" or body cells. I think it is the united consensus of all pediatricians that more deaths occur from dessication and fluid loss in diarrheas than from the diarrhea toxemia per se. Let me particularly stress this point. Treat the fluid loss and fill the body faster than it can purge out the vital fluids, and we will save nearly all of our vomiting infants with summer diarrhea. This applies especially to so-called ileocolitis, alimentary intoxications, dysenteries, and so forth. To supply the fluid we should use the newer method of intraperitoneal injections which I have used with spectacular success for the last few years. If vomiting and dehydration are marked, use 500 cc. of sterile normal saline intraperitoneally until vomiting improves, or, better still, use Hartmann's solution (physiologic buffer salts). Occasionally one may use a 2 to 5 per cent glucose admixed with the above solutions. The feeding should be very dilute and adjusted to the limited digestive capacity of the sick infant, forgetting caloric requirements for the time being. Remember these points on body chemistry and our vomiting diarrheas will respond without having to consider many drugs. It is a matter of cellular chemistry and body-fluid balance maintenance and this must be done

early before the case is moribund from dehydration. It is then too late.

VOMITING IN TOXIC STATES; AND WITH COUGHING. Toxic conditions such as acute infectious diseases, uremia with nephritis, recurrent cyclic vomiting, or poisonous effects of medicines or chemicals, may commonly account for vomiting in young infants or children. There is usually some metabolic disturbance. Acidosis vomiting may be associated but care should be exercised in the use of alkali therapy, as I have seen an alkalosis produced in the zeal to overcome acidotic vomiting in some toxic conditions. The treatment, of course, is aimed at the underlying cause.

Vomiting is frequently associated with coughing. First we consider pertussis. Having excluded whooping cough we often find an infant who vomits easily, expecially at night. In these cases, it is my experience that we are dealing with a recent respiratory infection with a possible sinus infection. A post-nasal drippage will thus aggravate the cough and may cause vomiting, especially at night. I see this quite often in even small infants during the winter months.

INTRACRANIAL CONDITIONS MAY CAUSE VOMITING. Some common causes are meningitis, rarely brain tumor or abscess, and, in certain cases, intracranial hemorrhage from birth trauma, and hydrocephalus. Vomiting of cerebral origin is likely to be severe and projectile in type but should not be confused with the projectile vomiting already described in pyloric stenosis.

Of course reflex vomiting may occur from such causes as cramming the fingers into the mouth and throat, the presence of worms in the intestinal tract, gagging on nipples that are too long, etcetera.

RECURRENT CYCLIC VOMITING occurs in infants mostly of the run-about age and more commonly in older children. It is generally accepted as a distinct clinical entity. Attacks come on suddenly out of a clear sky and are usually afebrile. They are often diagnosed as "biliousness." The symptoms may become very alarming and necessitate heroic measures if uncontrolled. There seems to be a metabolic upset. The urine is loaded with acetone and there may be diacetic acid, is often scanty in volume, and acetone odor can be smelled on the breath or often upon entering the room. Nothing is retained, not even soda water. Glucose acts specifically. It may be given by proctoclysis, intravenously, or intraperitoneally.

Griffith recommends the use of morphine in divided doses in extreme cases of vomiting. I have had no experience with this. My personal reaction would be to leave morphine out of all therapy in infants, as it may cause disaster in the young. Glucose and soda can be used by rectum in the country with success. Karo syrup will furnish the glucose needed. Failing in this, the case may have to be hospitalized or intravenous 25 per cent glucose given, usually into the external jugular. These patients are usually on a faulty diet lacking in mineral bases, fruits, and vegetables.

ALLERGY has recently been found to be a frequent cause of vomiting in infants, especially the artificially fed. Balyeat calls attention to this fact, citing cases in which there was abdominal cramping pain and vomiting. Greer has recently called attention to these symptoms in a number of difficult feeding cases and was able to clear the symptoms by removal of the offending food from the diet. I make it a rule to use the skin-scratch test on all obstinate vomiters to ascertain the possible allergic cause and more than once have found allergy to be the cause of vomiting in these infants, who are usually of a gastro-enterospastic or hypertonic type, as already described. Cow's milk, eggs, and wheat are common offending causes.

SYPHILIS. Last but not least, congenital lues, as in many other clinical conditions, may be an obscure cause of vomiting. Given an infant who is having a stormy feeding career, with persistent, intractable or even mild vomiting, one should always suspect congenital syphilis. A clinical case will serve to exemplify this condition.

Baby M., age five months, male, birth weight six pounds, two ounces. Present weight six pounds four ounces. Born at full term, normal delivery. Chief complaint: chronic vomiting, projectile in type; emaciation and nothing agrees, having tried every kind of a formula; given up to die. Physical examination revealed a pale emaciated vomiting infant with snuffles, enlarged spleen, and a liver palpable three fingers' breadth below the costal margin, sunken fontanel and dehydrated skin. I naturally suspected syphilis and told the mother my suspicion. Whereupon the mother broke down and confessed that she had acquired syphilis before marriage, that she was Wassermann fast, having had over $500 worth of treatment by two syphilologists in Oklahoma and had persistently eight positive Wassermanns. The mother further stated that she was afraid of this (syphilis) but would not volunteer her history to several other doctors, showing how the history has to be drawn out. Intensive antiluetic treatment and observation over a three-year period have apparently cured this case of syphilitic malnutrition with explosive vomiting. The vomiting

ceased after the second injection of sulpharsphenamine with mercury rubs.

CONCLUSIONS

1. Vomiting in infancy is common and should be considered only as a symptom.

2. The causes of vomiting are many and may be simple or complicated and the cause should always be sought.

3. A painstaking differential diagnosis will often be necessary.

4. Look for the simplest thing first and often a simple feeding regulation will suffice to end the vomiting.

5. In pyloric stenosis and abdominal conditions, early diagnosis and surgery will save many lives.

6. Early attention to body chemistry and combating of dehydration in anhydremia with vomiting, will save many lives.

REFERENCES

1. Marriott, W. McKim: Infant Nutrition, 1930, pages 232, 307, 240.

2. Griffith and Mitchell: The Diseases of Infants and Children, 1927. ii; 60-62.

3. Dennett, Roger H.: Simplified Infant Feeding. 3rd ed. (?)

4. Nesbit, Harold T.: Calcium Symposium of Texas Pediatric Society, Oct. 22, 1932.

5. Lectures from Pediatric Dept., N. Y. Post-Graduate Medical School and Hospital 1923-24.

6. Greer, David: Allergy in Infancy. Read before Pediatric Section, Pan-American Medical Congress, at Dallas, March 24, 1933.

7. Balyeat, Ray M.: Allergic Diseases, Third Edition, 1930. p. 365.

8. Holt, L. E.: Diseases of Children, Seventh Edition, 1919, pp. 329-331.

9. Hartmann, Alexis F.: Lectures and personal communication; also quoted by Marriott text on Infant Nutrition, 1930.

DISCUSSION

DR. C. F. MILLIGAN, Clayton, N.M. (opening): Dr. Lemmon has covered his subject very well. One thing Dr. Lemmon mentioned which impressed me very much, was to get some adequate treatment for your patient early.

I remember that, when I first began practising medicine, I was in the habit of trying everything that I had ever read or heard of. I never wanted to call consultation until I had tried all of these things. After I had been in practice a few years, I changed my mind. If the patient didn't respond to the line of treatment that was the most successful in my hands, I wanted some consultation to give me some help. Vomiting in infancy must have proper treatment and get it early.

The general practitioner should use more common sense and less medicine in infantile vomiting. The common causes are: indegtible food, contaminated food, faulty formulas, and too frequent or irregular feeding. Remove the cause and keep these little patients quiet and you will have accomplished much in treatment.

I have in mind a case in which the nervous element in the mother had much to do with the condition of the milk. Several years ago a woman came to me with her first baby. She was extremely nervous and wasn't giving enough milk for the child. She had tried supplemental feeding without results. She worried and cried a great deal because her baby wasn't doing well. We took the baby off the breast and instituted a good milk formula, and after that both mother and baby did well. She now has another baby. She is not so nervous this time, and her milk is agreeing with the baby.

Now if you can get along by keeping the baby on breast, do it; but if, after a thorough trial, you are convinced that the breast milk is at fault, do not hesitate to change to a well-balanced milk formula with the addition of cod-liver oil and orange or tomato juice.

DR. S. D. SWOPE (El Paso, Texas): I want to call attention to the mental and nervous element in this particular condition, which is very much more important than most of us appreciate. Also, to the effect of birth injuries in the very small infant. A very small hemorrhage in the center brain may make a very great difference in the handling of the very young child. In the South, along the Mississippi River, in the years past we had a great many ladies who did not want to nurse their children so they employed young negro girls for that purpose. Of course, whenever a steamboat landed, which was a great event and a joyous occasion in those days, nearly all of the children had more or less disturbance in their alimentary canals.

DR. J. W. HENDRICK (Amarillo, Texas): Dr. Lemmon is to be commended for being surgical minded. He is one internist who never temporises with intra-abdominal surgical conditions.

Appendicitis is quite frequent in children, more so than is generally taught. These cases should be operated early, as children do not tolerate abdominal conditions very well, unless they are taken care of promptly. One point I think is worthy of mention. In Vienna, with ruptured appendix they do an ileostomy. In many of those cases the gut is completely closed by the inflammatory condition, and if an ileostomy is not done, the patient dies from obstruction, and not from peritonitis, as is so generally thought, and by doing an ileostomy the patient is saved.

We had one case of gastric atresia which was operated for pyloric stenosis. At operation we found a marked hypertrophy of the circular fibers as is found in pyloric stenosis. At autopsy we found a complete atresia of the pylorus.

We also had a case of chronic gallbladder in a child 8 years of age, that was very toxic with irregular temperature and vomitnig, which promptly cleared up following the removal of the gallbladder.

DR. LEMMON (closing): Thank you very much for the discussion. I enjoyed Dr. Milligan's practical points as to the nervous and more-or-less neu-

rotic mothers. Possibly allergy may have something to do with the condition. As to Dr. Swope's point—mental disturbance in wet nurses—of course, in the infant, as in the mother, this condition will precipitate a great deal of trouble. As to surgery, Dr. Hendrick expressed my sentiments exactly. While I am more or less for the internist, I am surgical minded and if these cases are pushed off on the surgeon too late, that puts surgery into disrepute, especially concerning these weak infants. We follow this technic of ileostomy and have saved some lives. With its use, the mortality rate can be very materially lowered, and I want to thank Dr. Hendrick for his comments along that line.

CARCINOMA OF THE RECTUM

CLAUDE F. DIXON, M. D.,
Division of Surgery, The Mayo Clinic,
Rochester, Minnesota.

(Read before the New Mexico Medical Society, at its Fifty-First Annual Meeting, at Roswell, N. M., May 18-20, 1933.)

I have chosen to present the subject of carcinoma of the rectum for two reasons: first, because, aside from the stomach, the rectum of all the remaining alimentary canal is the commonest site of malignant lesions; and second, because the diagnosis of carcinoma of the rectum frequently is not made until the condition has become incurable. Moynihan's statement that carcinoma of the rectum is the most silent of all growths, obviously is true, and affords to some extent legitimate reason for delayed diagnosis. However, most victims of rectal carcinoma present symptoms sufficiently characteristic to warrant a diagnosis of the true condition in a much higher percentage of cases.

The incidence of malignancy of the rectum is considerably higher among men than among women, the ratio being about three to two. It occurs most commonly during the fifth and sixth decades of life. Young persons are not commonly afflicted, yet every year a surgeon may see three or four patients aged less than thirty years who are suffering from malignant lesions of the rectum. The prognosis in the latter group, even after radical removal, is extremely discouraging.

The views as to the cause of malignant lesions of the rectum are as varied as those concerning malignant lesions elsewhere in the body. However, a few facts are known regarding the site of origin and the method of progress of carcinoma of the rectum. Most of these lesions are adenocarcinomas. Those occurring in the anal canal originate from the protective tissues and are squamous-cell epitheliomas. Many carcinomas, considerably more than was formerly supposed, originate in polypi of the rectal canal. It is true that many polypi of the large intestine are benign, yet sections of some polypi demonstrate vividly the occurrence of malignant degeneration. Contrary to previous opinion, the process begins on the surface of the polyp, gradually involves the stalk, thence the submucosa, and results in true adenocarcinoma of variable degrees of virulence. Robertson is of the opinion that all interestinal polypi are potentially malignant. What percentage of carcinoma of the rectum originates in polypi is problematic; 50 per cent would seem to be a conservative estimate.

Intestinal polypi are perhaps much more common than is generally believed. Occasionally polyposis of the entire large bowel is found. Such a condition is invariably hereditary, and this finding is becoming so common that its presence in one person warrants investigation of other immediate members of the same family. Within the last year, two members of a family, mother and daughter, with diffuse polypi of the colon, came under my observation. In such cases malignant degeneration occurs frequently, and, in many cases, early in life. In 1930, I examined a woman, aged twenty-four, who complained of "bleeding from the bowel," and polyposis was found. Proctoscopic examination disclosed definite, non-obstructing carcinoma of the rectum. Roentgenograms disclosed a deformity of the hepatic flexure. A diagnosis of adenocarcinoma was made. I performed total colectomy. There was no metastasis. The patient continues to remain in good health. Because of the patient's age the prognosis is guarded.

ETIOLOGY

"Napkin-ring" carcinomas apparently originate from the intestinal glands. The function of such glands in the large intestine, so far as is known, is solely that of secreting mucus. Adenocarcinomas originating in this manner contain variable amounts of mucoid material and are often referred to as colloid carcinomas. Their cell structure is usually rather markedly differentiated, but, contrary to rule, the lesions may be quite malignant.

Irritation as a factor in the etiology of carcinoma of the rectum has been widely discussed, and irritation from contents of the rectum has been mentioned as a possible and likely cause. Yet, when one realizes that the fecal content is actually stored in the sigmoid and not in the rectum, the fallacy of such

cause is apparent. If irritation were a pertinent factor in the causation of carcinoma of the rectum, it would be reasonable to assume that the anus would be the most common site of the lesion, but, as a matter of fact, the reverse is true.

Broders' method of determining the virulence of malignancy, which is familiar to the medical world, is dependent on the degree of differentiation of the malignant cells: the more the cells are differentiated, the less malignant is the growth. This method is of inestimable value in the treatment and prognosis of malignancy.

SYMPTOMS

Although symptoms of carcinoma of the rectum vary considerably, they are extremely important. As previously stated, symptoms do not appear early in the disease in certain cases. However, this does not excuse neglecting to investigate such cases, even if the symptoms are only suggestive of rectal carcinoma. Bleeding from the rectum is the most common sign of rectal carcinoma. True, it is also a sign of other disturbances and is not, so far as can be elicited from the patient, present in all cases of carcinoma of the rectum. Suffice it to say that a patient complaining of bleeding from the rectum deserves most careful differential examination. Recently I operated on two patients with rectal carcinoma; their only complaint was bleeding. Each had been operated on three times during the previous year because of "piles." A digital examination of the rectum was all that was necessary to establish a correct diagnosis. At least 25 per cent of patients suffering from carcinoma of the rectum are treated primarily for hemorrhoids. Irregularity of bowel habit is also a significant symptom. The patient with a growth in the rectum often complains of the small caliber of the stool, and diarrhea or pseudodiarrhea is not uncommon. The stool is often loose when the lesion is producing rather marked obstruction, and consists mainly of blood and mucus. In such instances a diagnosis of colitis is frequently made.

Pain is not a common symptom unless the disease is well advanced. This is easily understood if one recalls that the rectum has no nervous mechanism capable of transmitting pain. When the structures surrounding the rectum, that is, the bladder, prostate gland, and seminal vesicles, become involved by the malignant process, the patient complains of pain.

METHOD OF EXAMINATION

It has been stated that an important function of the consulting physician is to examine the rectum. It is true that all carcinomas of the rectum and most of those in the rectosigmoid can be felt, at least, if a careful digital examination of the rectum is made. After a little experience, the physician can detect a malignant lesion by palpation, with surprising accuracy. If a mass is felt in the rectum, a proctoscopic examination should always be made; this affords observation of the tumor grossly. During such examination a specimen can be easily removed for microscopic study. The experienced proctologist can determine accurately whether a tumor of the rectum is malignant. When a malignant growth of the rectum is visualized through the proctoscope, it invariably presents the following characteristics: (1) usually only one lesion is present, the edges of which are well circumscribed, the central portion is usually hollowed out, and (2) as a rule the surrounding mucous membrane appears healthy.

TREATMENT

Obviously, the best treatment for carcinoma of the rectum is clean and complete removal of the diseased segment. Many surgical procedures have been adopted, and almost as many opinions prevail as to which is the better method. If one can imagine a single polyp in the rectum in which the surface only barely shows signs of malignant degeneration, it seems logical that a minor operative procedure would effect cure. Unfortunately, such an ideal case is not often presented for treatment. Usually the process is much farther advanced, so much so in certain instances that only temporary relief can be given.

Posterior resection of the rectum antedated by permanent colostomy has effected cure in many cases. This major procedure can be carried out with a comparatively low mortality rate. During 1932, seventy-nine such operations were performed at the Mayo Clinic with three deaths, a mortality of 4 per cent. Many of these patients were aged more than seventy years, and besides carcinoma of the rectum, they had other concomitant organic disease.

Abdominoperineal resection for carcinoma of the rectum is more radical than posterior resection. It therefore entails a higher morbidity and a higher mortality. Posterior resection is unquestionably justifiable in many cases, however; more particularly if the growth involves the rectosigmoid, if the patient is young, and if the grade of malignancy is comparatively high. This procedure is best suited to the slender, asthenic, wiry type of patient. A patient aged sixty-five or seventy-five years, with carcinoma in the rectum or low in the rectosigmoid, graded not higher than 3, may be satisfactorily treated by permanent colostomy followed by radical posterior resection.

For growths in the lower part of the rectum and

for those in the anal region, the Quenu-Tuttle or Harrison-Cripps operation is often satisfactory. In these procedures, the sphincters are sacrificed, which means that the malignant area is removed and a sacral anus established. Even in the absence of the anal sphincters, many of the patients get along satisfactorily without abdominal colostomy. The control of bowel excrement in such a case is dependent on the formation of scar tissue, on the contraction of the gluteal muscles, and on prolapse of the mucous membrane. The latter forms a sort of a valve and aids the patient greatly in controlling the bowel.

In order to avoid permanent colostomy, various procedures have been carried out. For example, many growths situated in the median portion of the rectum may be removed as a segmental resection, the ends of the bowel being reunited. Obviously, this is not a radical procedure and there is like to be recurrence unless the cases are carefully selected. Grey Turner has performed segmental resection of the rectum in seventeen cases in the last seventeen years. There were no surgical deaths in this group and no serious complications. Only fourteen of the growths were malignant. There were six recurrences. One patient died three years after operation without evidence of recurrence. Seven patients are alive and well at periods of from five to twelve and a half years following operation.

During the last three and a half years, at the suggestion of Dr. Logan, I have carried out conservative procedures in several carefully selected cases of carcinoma of the rectum. By conservative procedure I mean one in which the normal function of the rectum is preserved. The criteria on which the selection of cases for such treatment depends, are: a movable growth involving only a portion of the wall of the bowel and of a grade of malignancy not higher than 2. Radium, supplemented by roentgen rays, is used. The patient is then dismissed with instructions to return in two months. If at that time the growth has receded in size at least half, a conservative type of operation is justifiable. The effect of radium on certain malignant conditions of the rectum has been observed as follows: there is marked dissemination of the nuclear elements of the carcinomatous cell, and in general pronounced disintegration has occurred, so that, in certain cases of carcinoma in which radium has been used, a section of the remaining tissue shows a more-or-less homogeneous mass of debris.

I wish to emphasize my statements regarding the conservative type of operation for carcinoma of the rectum. This procedure must be carried out in selected cases, and it is not by any means advocated as a general therapeutic measure. The cases of rectal carcinoma in which I have used radium and roentgen rays preoperatively, have thus far afforded satisfactory results. In some cases the segment of bowel after such treatment has shown nothing more than an excavated ulcerated area. In two cases no evidence of the previous growth could be found. In many others, the malignancy has been hardly discernible in the segment of bowel removed. In carrying out such a procedure the patient is not afforded the opportunity of abdominal exploration, such as is done during the process of colostomy. On the other hand, even if metastasis was present in such a case, the type of procedure carried out would give the patient a more comfortable existence. If there is no lymphatic involvement and the patient has responded well to preoperative treatment, I believe good results can be obtained. The type of procedure to be carried out in carcinoma of the rectum should be dependent on the age and physical condition of the patient, and the virulence and size of the growth.

Most patients regard permanent colostomy with horror. When it is inevitable, great care should be exercised in explaining to the patient how the artificial anus can be cared for properly. Unquestionably, with the patient's cooperation, regulation of diet, and so forth, a permanent colostomy can be cared for so satisfactorily that it will prove of little inconvenience. However, it should be determined carefully whether a growth in the rectum can be cleanly and satisfactorily removed by some of the foregoing methods, with establishment of a permanent colostomy.

RESULTS OF TREATMENT

The morbidity and mortality following operations on the colon in the last few years has been markedly reduced by a careful preoperative regimen. The patient is hospitalized for four or five days before operation. A nonresidue diet high in carbohydrates is given. Rectal irrigations are carried out twice daily, and if obstruction is marked, a mild laxative is given. Three days before operation, intraperitoneal vaccine is given, in an effort to guard against postoperative peritonitis. This vaccine is prepared by isolating organisms which have proved fatal in cases of peritonitis following operations on the large intestine. It consists of streptococci and colon bacilli. As a result of such preparation, the mortality from peritonitis in posterior resection of the rectum, in which operation the peritoneal cavity is invariably

opened, has decreased in the Mayo Clinic from 10 per cent in 1928 to 1 per cent in 1932.

COMMENT

The eradication of carcinoma of the rectum, unlike that of malignant lesions in other organs of the body, is dependent on early diagnosis. The diagnosis of intra-abdominal malignancy is dependent for the most part on careful examination and expert roentgenographic study. The diagnosis of carcinoma of the rectum is dependent for the most part on only one procedure, and that is digital examination of the rectum, which should be a routine procedure in every case in which a general examination is made, or in which symptoms are suggestive of rectal disorder. This obviously requires no special equipment. I believe the general practitioner is largely responsible for the discovery of early carcinoma of the rectum.

DISCUSSION

DR. JOHN T. MOORE, Houston, Texas (opening): It has been a real pleasure to me to see and hear a presentation of this subject by Dr. Dixon. There are so many things one feels like saying in appreciation of the splendid work that has been done for many years in the Mayo Clinic before groups of enthusiastic young men who have gone into this study and are now doing splendid work. I have had the pleasure of hearing Dr. F. H. Rankin, formerly of that Clinic, now of Lexington, Ky.

At one time I had about decided on a definite program to follow in this line of work on cancer of the rectum. It is like seeing a man demonstrate a particular type of machine or instrument. He has learned to do it so well that you go away feeling that you should have bought that machine, and then you go farther and hear a man telling the other side of the case and you feel he does it so well that you ought to take his type of car.

I have tried to decide during the last few years whether to adopt the one-stage procedure as suggested in the discussion, or whether to do this procedure in two stages, as was presented. Dr. Lahey of Boston, whom you all know, has presented a technic which I have felt is fine. I think the decision whether or not to do the operation in one or two stages must be determined by the individual operator's skill and speed. We have a distinct feeling that the time element is important in any operation for cancer, particularly in these radical procedures of the rectum and lower colon, which need to have good work done and to have it done as speedily as possible. If you can cut down your operating time and do your work just as well, we have a feeling your mortality is bound to come down. In the Mayo group, in the technic followed by them so well, they have emphasized some of the important things which have dropped their mortality to a low point. They mention the preparation of the patient and emphasize the substitution of a hydrocarbon diet in place of the protein diet. I think this has a great deal to do in the success of these cases. I have had no experience myself in the use of vaccine, but we have the impression and feeling that this has been a distinct contribution to the success of this operation. As we know infection, various types of infection, and particularly that infection giving a peritonitis, take away a larger number of cases, especially when in the hands of experienced men. So, if a vaccine is used which will build up a tolerance for these infecting organisms such as the streptococcus and the colon bacillus infection, this must be a distinct advance.

In regard to colostomies, many patients tell me they would rather die than have a colostomy. We have been in the habit of calling on some of our friends who have had permanent colostomies, to talk with prospective patients, as a number of our colostomy patients tell us they get along just about as well with the colostomy as they did before. It is a little trouble, of course, and some time must be taken to get the bowels regulated and controlled, but if you can sell the idea to the patients, they can many times have the opportunity to live a long and useful life, and live it in comfort. We have an old lady now, over 70, who refuses to have any operative work done. We introduced radium into the growth and, so far as we are able to tell now, after a year and a half, the tumor, which was near and involved the sphincter, is well. We advised her to take deep x-ray therapy, feeling there might be some metastases, but she refused. The outcome is doubtful in her case. Our experience has been rather limited in the use of radium in this type of growth. I do not care to be thought a crank, advocating something not practicable, but we do believe that, after a radical removal of the breast and axillary glands, the transplantation of radium at strategical points will cure a larger number of patients than is possible by the operation alone. Those of you who have had experience with radium know that, if you miss any of the glands when removing hemorrhoidal vessels and glands, you may miss some of the carcinoma-infected glands. By proper doses of radium over a length of time, those glands would be held in check, and a permanent result would be obtained.

DR. J. W. HENDRICK (Amarillo, Texas): Dr. Dixon gave an excellent discussion of this subject. The remarks of Dr. Moore were of importance. The important thing, I think, in the management of rectal tumors is an early diagnosis, and that can be facilitated by putting on a glove and making a rectal examination. Especially should this be done if there is a history of "rectal trouble," and with people who are of the cancer age. If you will put your finger in enough rectums, you will soon learn to ascertain if any abnormality is present.

Cancer of the rectum is not limited to old people. I have recently resected an adenocarcinoma in a girl twenty-two years of age; and some time ago I

saw a girl eleven years of age with an adenocarcinoma of the rectosigmoid.

Any history of rectal bleeding or irregularity in the bowel movements (constipation or diarrhea) should be carefully investigated. However, bleeding may be a late manifestation, as ulceration of the mucosa must take place before it is present.

Pain is a very inconstant symptom if the growth is above the pectinate line, as that part of the rectum is supplied with only sympathetic nerve fibers. However, if the growth is very large and infiltrates into adjacent organs, there may be a heavy dull pain in the lower pelvis and sacral regions. If the growth involves the anus, excruciating pain will be observed from the beginning. If on examination polypi are found, they should be removed at any age or at any time, as they are premalignant.

The method of removal advocated by Dr. Dixon is good, as is shown by their results; but I believe that we should individualize each case and apply whatever method will take care of that particular case. The two-stage abdominoperineal method developed by Dr. Frank Lahey, is very practical, especially in handling the colostomy. The advantage of his method is that as much time can elapse between the primary and secondary operation as the surgeon desires in which to build up the patient. The lower segment of bowel can be irrigated with antiseptics during the preparation, and it will be clean and empty. Also, the surgeon is working away from an infected colostomy.

Dr. Dixon said that 22 per cent of the malignancies of the gastro-intestinal tract occurred in the rectum, and that 65 per cent were inoperable when they came to the clinic. That should emphasize the fact that there has been a "let down" in the examination of patients, for the rectum is a place where a growth can be seen and felt.

If these tumors are found earlier, something worth while can be done for the patient.

DR. J. W. CATHCART (El Paso, Texas): I should like to ask if Dr. Logan's cases are operated later.

DR. DIXON (closing): I particularly appreciate the discussion of this subject by the older contemporary surgeons. I more than enjoyed the discussion by Moore, Cathcart, and Hendrick. Where a permanent colostomy is necessary, I think it is important to discuss the operation in detail with the patient and emphasize that a permanent colostomy can be cared for wihout interfering to any large extent with the normal activities of the individual. In those cases of carcinoma of the rectum where radium has been used, resection has almost invariably followed. As Dr. Hendrick has suggested, rectal examination as a routine procedure cannot be emphasized too strongly.

THE THERAPEUTIC USE OF BACTERIOPHAGE, WITH SPECIAL REFERENCE TO STAPHYLOCOCCUS SEPTICEMIA

L. O. DUTTON, A.B., M. S., M. D.
El Paso, Texas

(Read before the New Mexico Medical Society, at its Fifty-First Annual Meeting, at Roswell, N. M., May 18-20, 1933.)

In 1916 F. d'Herelle discovered the phenomenon of bacteriophagy, which, with the closely related phenomena that we are pleased to include under the term microbic dissociation, has so completely altered many of our bacteriological and immunological concepts that we are at the present time faced with the necessity of completely rebuilding our system of bacteriological philosophy. The busy practising physician realizes little of what is being done in countless research laboratories at the present moment. Hours of your time could be consumed with a bare outline recital of the many unique observations that have led to new concepts and theories. Many of these will undoubtedly be proved false as new observations and experimental data are accumulated. Enough is established, however, to open the door so that we may view future possibilities with sufficient clearness to see that most of our old ideas concerning infection and the resistance to infection must be discarded and that rational explanations will take the place of much that has been explained by highly fanciful theorizing and much that has heretofore remained mystery.

Ultramicroscopic destructive parasites of the bacterial cell, changes of bacterial strains from virulent to avirulent and back again, bacterial life cycles more complex than any life cycles of higher animals or plants, filtrable and invisible forms of non-filtrable and visible bacteria, bacteria with nuclei, male and female bacteria with sexual conjugation as one of their functions, genetic relationships between what we have thought to be widely separated bacterial forms, and a host of other just as revolutionary examples, make the science of bacteriology during the present and future one of the most fascinating of the sciences. It is much too soon to foretell with any degree of accuracy just what the ultimate practical results of these numerous studies will be. To the physician whose paramount interest is combating disease daily and in a practical manner, there are al-

ready results that command interest. These results are widely reported in the literature. Most of them, however, have been confined to journals of narrow distribution or to foreign journals and have not, as a consequence, reached the great bulk of American doctors. It is not my purpose to recite these results from the literature, nor to recite the details of the numerous tedious but fascinating laboratory experiments that have been the necessary accompaniment of the clinical material to follow, but to give you my own experience with bacteriophage therapy in infectious diseases.

Bacteriophage is a lytic principle characterized by several very unique properties. The chief of these is that it has the capacity to reproduce itself. Its other properties are so well in accord with those usually postulated as belonging to living things that it has been thought to be a living parasite of bacteria. For practical purposes we may accept that it has the capacity to destroy bacteria and that it is amenable to careful laboratory control. Bacteriophage is prepared by subjecting a young bacterial culture in a fluid medium to the action of some substance that is suspected of having a natural bacteriophage present, such as feces, sewage, old pus, or old bacterial cultures.

After an incubation period at the appropriate temperature, the mixture is filtered through one of the bacterial filters and a portion of the filtrate is added to a second young culture. This process is repeated until the characteristic lytic phenomenon of bacteriophage is obtained. This consists of, first, a period of rapid growth of the bacterium, which results in clouding of the medium; and, second, a rapid dissolution of the bacterial cell, which results in the restoration of the original limpid character of the fluid. This is then filtered and, after appropriate incubation to test the sterility, the filtrate is ready for use. Significant in this process is the fact that the serial filtrations and lysis of fresh young cultures may be continued indefinitely and that with strong bacteriophages as little as one billionth of a cubic centimeter is all of the filtrate that is needed to reproduce the characteristic lysis. Bacteriophages have been found that are active against a great many of the pathogenic organisms, and the literature is full of such reports.

The next very significant fact in regard to bacteriophage is its distribution in nature. It is found in abundance only where bacteria are found. A corollary of this is that in the case of the pathogenic organisms it may be isolated from the human body only after the process of recovery from infection has begun. The natural inference is that the bacteriophage appears in the human body as a factor in the natural recovery from infectious diseases. This has been demonstrated conclusively for the bacteriophages active against the organisms of dysentery and typhoid, and to a less conclusive degree for infections by the pyogenic cocci. Thus in summary we see that the bacteriophage is an ultramicroscopic filtrable principle having the capacity to completely destroy bacteria, with the ability to reproduce itself; and that it appears in nature as one of the factors in natural recovery from infectious disease.

What could be more natural than that this principle was, soon after its discovery, used as a therapeutic agent. To give even a hasty sketch of the numerous trials in this direction in a wide variety of infectious diseases, would take too long to include in this paper. Rather, I will summarize my personal experiences in a selected group of conditions and give my impression as to its value as a therapeutic agent.

BACILLARY DYSENTERY

Bacillary dysentery of the Shiga type was the first disease in which bacteriophage was used. Because, in the community in which my work was done, Shiga dysentery was a comparatively small part of the bacillary dysentery present, my experience with this condition has been limited to only three cases. Two cases were brought into the hospital from a plantation in Mississippi. Both were in the terminal stages of the disease, both were given bacteriophage by mouth, both terminated fatally. The mother of these two children developed the disease while they were in the hospital. As soon as the diagnosis of the condition was made, bacteriophage therapy was instituted. One dram doses were given by mouth at two-hour intervals. The patient's condition had returned to normal after forty-eight hours.

During two summers in cooperation with the pediatricians of Memphis, Tenn., bacteriophage therapy was used in about sixty-six cases of Flexner and Hiss dysentery. These infections rarely result fatally, so that the mortality rate was not a valuable index of the efficacy of the treatment. Also, due to the conditions of the experiments, it was impossible to obtain accurate data in regard to the duration of the illness. It was the very marked impression of the clinicians, however, that the patients treated with the bacteriophage were much less toxic and the symptoms lasted for a much shorter time than with the patients who received the conventional treatment.

TYPHOID FEVER

In a series of eighteen bacteriologically proved cases of typhoid fever, bacteriophage therapy was employed. In this case the phage was administered intravenously in doses of one cubic centimeter. In nine of these cases the results were negative. No evidence was secured that the phage had affected the patient one way or another. In the remaining nine cases, however, the results were so startling as to leave no doubt that bacteriophage should be one of the standard agents in combating this disease. In all nine cases the course of events was much the same. After blood cultures had proved the disease, one cubic centimeter of bacteriophage was given intravenously. In about fifteen to thirty minutes, the patient had a chill that lasted for about one hour. None of these were alarming, however, and in the course of several hours the temperature had dropped to normal. Several of these cases required no further therapy, the others required a repetition of the injection on the following day. In not a single one of the nine was there any elevation of the temperature after seventy-two hours following the first injection. In six of the nine cases, the therapeutic trial occurred within the first two weeks of the disease, and in all six cases convalescence was so prompt that the patients were going about their customary routine within five days after the first injection. Certainly, any agent that is capable of so promptly terminating favorably a disease as protracted in its course as typhoid fever, even though in only 50 per cent of the cases, is well deserving of more widespread use. Some of these typhoid cases presented a curious paradox when viewed in the light of the postulation that for a bacteriophage to be therapeutically active it must be proved capable of producing lysis in the test tube.

In each of the eighteen cases, the organism that had been isolated from the blood stream was subjected to the action of the bacteriophage in the test tube. Curiously, some of the strains that proved to be the most susceptible to phagic action in the laboratory proved to be highly resistant in the patient. More curious still was the fact that several of the strains of bacteria that were entirely resistant to experimental lysis, were isolated from patients who made the most prompt recoveries following injection of bacteriophage. Strains of antityphoid bacteriophage are generally not active against many strains of the typhoid bacillus, so that to secure the maximum benefit from its use there should be available as many as possible potent strains of antityphoid phage.

BACILLUS COLI INFECTIONS

The colon bacillus is highly heterogeneous in respect to its response to phagic action. Many strains of anti-coli phage are limited in activity to only one or two strains of the organism. For this reason it is much more difficult to secure a phage for any particular infection than with many other organisms. A few cases of colon bacillus infection were found, however, which were caused by strains that were susceptible to the coli phage that was available. In each of these it was apparent that the phage therapy was highly efficient. One of these cases was a perirectal abscess which had resisted for four weeks the best efforts of the attending physician. Phage was instilled into the abscess cavity and within twenty-four hours the drainage was greatly diminished, and within forty-eight hours, it had completely ceased.

URINARY INFECTIONS

My experience with urinary tract infections has also been limited. Only one outstanding case is in the series. It suffices at least to indicate the possibilities.

A patient recovering from typhoid fever developed a violent cystitis. Cultures of the urine showed a mixed infection of staphylococcus aureus and streptococcus, with the staphylococcus composing about 95 per cent of the bacterial population of the urine. The symptoms were so severe that voiding was excruciatingly painful and occurred at intervals of about 15 minutes. Repeated bladder washings and other medications had failed entirely to control the symptoms over a period of about ten days. Fifteen cubic centimeters of staphylococcus bacteriophage was instilled into the bladder. Much to our surprise, the patient went for two hours following this, without discomfort, and then voided without pain. There was no return of symptoms at all for about three weeks, when there was a slight return of pain. Another bladder instillation of bacteriophage was made. The symptoms promptly disappeared and there was no further trouble experienced.

Of course, one case does not indicate the efficiency expected in a series of cases, but the results obtained do indicate that in appropriately selected cases, provided a strong bacteriophage is available against the offending organism, much benefit may be obtained by phage therapy.

INFECTED WOUNDS

In about forty cases of infected wounds, many of them operative, phage therapy has been of undoubted value. The procedure in handling this type of case has been to determine the bacterium involved and then secure a bacteriophage that showed marked

lytic activity against it. This phage was then used to instill into the wound and saturate the dressing. Also one or two subcutaneous injections were made at a distant site. In numerous trials it was found that, in wounds which had been highly resistant to the usual therapeutic measures, improvement was so prompt as to be truly amazing. Wounds which were saturating voluminous dressings with pus, practically stopped draining in twenty-four to forty-eight hours, and healthy granulations developed. Wounds that were treated at the onset of the infection were healed in an average of five days, while similar wounds treated by the usual procedures healed only after three to six weeks. If only in a portion of cases the hospital stay can thus be reduced, bacteriophage will prove to be a valuable agent in this type of infection.

STREPTOCOCCUS INFECTIONS

When the etiology of a local lesion proves to be the streptococcus, chances of good results with bacteriophage are greatly reduced. However, there have been enough good results to warrant a trial in such infections, for, when benefit is obtained, it is so prompt and complete in contrast to the usual protracted course of such infections that the effort is well repaid. Certain cases of cellulitis resulting from minor injuries have responded rapidly and completely. The chief difficulty here, as in all streptococcus infections, is to find a bacteriophage that has lytic power against the offending organism.

In previous papers, I have reported in detail some forty cases of streptococcal septicemia that were treated with intravenous injections of bacteriophage. Eleven deaths occurred in the series. Five of these were sub-acute bacterial endocarditis due to the streptococcus viridans, two were complicated by streptococcal meningitis, two were treated for the first time after the patients had become moribund. Some of the apparently good results may be due to the fact that every effort was made to diagnose cases early. Almost routine blood cultures were done if there was the least possibility of a blood-stream infection. As a consequence, there were many cases in the series that would ordinarily have remained undiagnosed. A series of fifteen such cases occurred at times when the stock of available bacteriophage was exhausted. Eight of these recovered promptly without any therapy directed at the blood-stream infection.

FERUNCULOSIS, BOILS AND CARBUNCLES

In localized staphylococcus infections such as furunculosis, boils, and carbuncles, the results are so good and so constant that phage therapy should be the standard. I have not encountered a single case in which the method did not appear to be superior to the older methods. The procedure is simplified in that strong polyvalent bacteriophages are available against the staphylococcus, and stock preparations are consequently as effective as autogenous preparations. The lesions are treated locally by the instillation of a small amount of phage directly into the center and two cubic centimeters are given subcutaneously at a distance. Early lesions are aborted, older lesions are relieved of pain, and the processes of resolution and repair are greatly hastened. Furthermore, recurrences are extremely rare. The efficiency of phage therapy in these conditions is so well established as to deserve little more than mention.

STAPHYLOCOCCAL SEPTICEMIA

Staphylococcal septicemia offers one of the most appropriate fields for phage therapy. The results are easily evaluated, for the condition is almost 100 per cent fatal. A strong phage may easily be kept at hand and treatment instituted as soon as a diagnosis is made without delay of searching for an active agent. The first case in the series here presented occurred in the fall of 1927 and the others at sporadic intervals since. The first case to be presented in the literature was in 1928. Since then, there have appeared several reports, the most extensive of which was that of McNeal, detailing fifteen cases with seven recoveries.

In the following summarized twelve cases, there resulted eleven recoveries following the intravenous injection of 2 cc. of staphylococcus bacteriophage. These results are so striking that little doubt can remain as to the efficiency of such procedure. Briefly summarized, the cases were as follows:

CASE NO. 1. Mrs. B. Illness began with obscure encephalitic symptoms. During her convalescence, she began a series of chills and fever and was treated with intravenous injections of quinine. At the site of one of the venapunctures an abscess developed, following which she was admitted to the hospital. There she presented a picture of typical septic infection. A blood culture revealed a growth of staphylococcus aureus. A repeat culture confirmed the findings. At this time, her temperature was ranging very high (104° - 105°) and the prognosis was very grave. Two cubic centimeters of staphylococcus bacteriophage were given intravenously. Within twenty-four hours there was a marked drop in temperature, and a blood culture taken eighteen hours after the injection remained sterile. The patient went through an uneventful convalescence to a complete recovery. No metastatic abscesses appeared, and after several months, when last heard from, there were no recurrences or complications.

CASE NO. 2. Dr. W. Following a traumatic injury of the leg, staphylococcus osteomyelitis developed which could not be controlled, and an amputation above the knee was done. Following this operative procedure, the wound became infected and routine treatment failed to control it. A typical clinical picture of septic infection followed and blood culture was positive for staphylococcus aureus (1000 colonies per cubic centimeter of blood.) On the twenty-eighth postoperative day, a thrombus of the femoral vein extended well into the abdomen, one pleural cavity was filled with fluid, and there was a possible abscess in the opposite lung. After successive measures had been used in futile attempt to control the blood stream infection, 2 cc. of bacteriophage were given subcutaneously and the dressing of the stump was saturated with it. Blood cultures on this day were positive. The blood culture twenty-four hours after the injection showed 100 colonies per cubic centimeter blood. After forty-eight hours the drainage from the stump was markedly reduced. Injections were given at forty-eight hour intervals, with blood culture taken on the intervening days. The colony counts were respectively 100, 50, 20 and 0. The patient was finally discharged from the hospital and left the care of his physician. In this case, the intravenous route for administration of phage was decided against, due to the extremely poor condition of the patient. His attending physician felt that even a slight reaction would result fatally, as indeed the family had been informed there was no possible opportunity for his recovery.

CASE NO. 3. Baby H. This patient presented acute otitis media from which staphylococcus aureus was cultured. As the temperature was very high and presented a typical septic curve, a blood culture was taken which gave a growth of staphylococcus aureus. Second culture confirmed the findings. Two cubic centimeters of bacteriophage were given subcutaneously and there followed a prompt drop in temperature. Check culture twenty-four hours after the first injection was given was sterile. The second day, convalescence was prompt and complete.

CASES 4, 5, and 6 were essentially similar. All were traumatic injuries to the extremities with secondary cellulitis, from exudate of which hemolytic streptococci and staphylococcus aureus were cultured, while from the blood stream only the staphylococcus was obtained. Only two of these cases had a second check culture to rule out possible contamination. Repeated subcutaneous injections in one case (6) and only two in the other two cases, modified the temperature, and all went to recovery without the development of metastatic abscess.

CASE NO. 7. Mr. B. presented a low grade persistent unexplained fever for a duration of two months. Three blood cultures on three successive days all showed staphylococcus aureus, an average of two colonies per cubic centimeter of blood. Two cubic centimeters of bacteriophage were given intravenously, following which within forty-eight hours the temperature became normal and remained so, and the blood culture became sterile. Recovery was complete.

CASES 8 and 9 presented staphylococcal septicemia following abdominal operations. Bacteriophage was given subcutaneously in one case and intravenously in the other. In both, the septicemia was clinically and bacteriologically controlled. Both had tedious convalescences, but made a complete recovery.

CASE NO. 10. Mrs. R., following an abdominal operation, developed parotitis, which became progressively worse. Blood culture showed heavy growth of staphylococcus aureus. One cubic centimeter of phage was given intravenously. A rather severe reaction developed after about one hour, with rapid feeble pulse and cyanosis, which was controlled by heat and stimulants. However, the patient died six hours later. This patient was practically moribund at the time treatment was instituted.

COMMENT

Five of the above cases were extremely severe and presented a grave prognosis. Four recoveries in this type of infection is certainly better than our previous therapeutic efforts have led us to expect. The remaining five cases were not severe and probably would not have been diagnosed as septicemia except under the stimulus of almost routine blood cultures on febrile cases, and it cannot be said that they should fall in the same category as those cases in which we generally expect a fatal termination.

Systemic reactions seldom follow the subcutaneous or intravenous injections of staphylococcus bacteriophage, nor does any considerable local reaction develop. No evidence of anaphylaxis has ever been observed with intravenous or subcutaneous injections, except in two cases (not in this series). These cases gave a marked anaphylactic reaction which, after study, was determined to be due to the staphylococcus protein instead of to the bacteriophage or the medium, as the staphylococcus vaccine produced the same result, while sterile filtrates with staphylococcus protein were innocuous. All the bacteriophage used was prepared in the usual manner originally described by d'Herelle. All filtrates were adequately controlled for sterility. The stock phage was used which had at least two weeks incubation. Autogenous phages were not considered as being practicable due to the length of time necessary to prepare and control them. Our only precaution is to insist on doses not over 2 cc. subcutaneously and 1 cc. intravenously. There has been much in literature concerning the harm of peptone present in the medium used in the preparation of filtrates. In our experi-

ence, no reactions attributable to peptone have ever been obtained.

CONCLUSION

The filtrates used, as has been previously pointed out, contain not only bacteriophage but growth products and a high concentration of a bacterial protein. For this reason we prefer to use the term "filtrates of bacteriophage lysed cultures" instead of only bacteriophage. There are sufficient theoretical grounds to warrant the necessity that at the present time at least we should differentiate between such filtrates and the bacteriophage per se. We do not wish to imply that lysis of the bacteria in vivo is a major or even incidental factor in its therapeutic action. It is well known that the bacterial proteins are not antigenically altered in the lysed state.

In conclusion, I wish to emphasize that I do not want to be hyperenthusiastic as to the merits of bacteriophage therapy. There are many factors that will have to be worked out before the method gives constant results. There are many infections that do not respond to such measures. There is much to be done to establish the mechanism of the action of the bacteriophage in the animal body. One precaution must be insisted upon: the bacteriophage used must be highly potent to secure any results whatsoever. A great many of the failures reported in the literature were undoubtedly due to the use of a weak phage. The outstanding impression that I wish to leave with you is that in the case of staphylococcus infections, both local and systemic, the bacteriophage has proved to be of inestimable value. In many other infections the results have been so encouraging that it is well worth the effort to secure the remarkable benefit possible, even in a limited number of cases. Certainly it seems that we should continue to experiment, with the hope of improving these results and with the hope of making generally available an agent that holds so much promise in the treatment of conditions that otherwise have been resistant to the older methods of treatment.

DISCUSSION

DR C. F. MILLIGAN (Clayton, N.M.): This is a new subject to me, about which I know very little; but I should like to ask if this is a specific preparation or if you have to isolate your germ and get up a kind of vaccine before doing anything with it.

DR. R. O. BROWN (Santa Fe, N. M.): Because I have had an opportunity of looking over Dr. Dutton's paper, I regret very much that he did not have time to read it in full. It is very interesting and a very timely paper. There is doubt as to the merit and properties of bacteriophage in the minds of many doctors. The main deficiency in the reports on its use is the lack of control cases. In this paper Dr. Dutton has reported on a disease where controls are not needed, because of the almost universal fatality of the disease itself. A paper such as this is particularly valuable, because the discovery of the bacteriophage does not seem to have been followed by the practical results expected, there having been a great deal of disappointment in clinical results, and a good many puzzling features having come up in the laboratory work. From a review of the literature, there is no phage giving satisfactory results in dysentery. Its users do not seem to be able to prove that it has been of much benefit and have been unable to show the influence of bacteriophage on the disease. In the Hygienic Laboratory, experiments with animals inoculated with bacteria both before the bacteriophage was injected and afterwards, apparently failed to show any definite results as far as protection against the disease was concerned.

Dr. Dutton's results speak for themselves in his report. If we can get a result in half of our cases of typhoid, we should be very well pleased.

DR. DUTTON (closing): I am sorry that I do not have more time to discuss this subject, as it has been the major part of my work for a good many years. The amount of tedious technical detail that is involved in a study of this kind is tremendous. It is the kind of bacteriological work that can not well be trusted to an assistant.

In the case of staphylococcus infections, we have a potent highly polyvalent bacteriophage and we find it advantageous to use stock preparations that are kept on hand. As a rule the use of autogenous phage requires too much time for its preparation and control for it to be practicable. Occasionally we have seen serious and even tragic results from the use of incompletely controlled preparations which carried contaminating virulent organisms.

As to the details of preparations, the source of a phage may be old bacterial cultures, pus, feces, sewage, and so forth. Filtrates are made of these and are then added to young cultures of the organism we are working with. These are incubated at various temperatures. The cultures are refiltered after twenty-four hours and the process is repeated until definite evidence of lysis is obtained. The completely lysed filtrate is then re-inoculated with the organism in question, lysis is obtained the second time and even the third time. This product is then filtered, incubated for two weeks to control sterility, and is ready for use. In general it is necessary to utilize a bacteriophage which is specifically active against the organism infecting the patient. However, in a number of cases of typhoid fever, we have secured prompt recovery from the disease by the use of bacteriophage which did not lyse the organism in vitro. As a rule, when clinical results are secured, they occur very promptly, and patients who resist bacteriophage treatment after two or three injections, usually do not respond at all.

CHILDHOOD TUBERCULOSIS

R. B. HOMAN, Sr., M. D.
El Paso, Texas

(Read before the New Mexico Medical Society, at its Fifty-First Annual Meeting, at Roswell, N. M., May 18-20, 1933.)

Much has been added to our knowledge of tuberculosis in infancy and childhood, during the past ten years. In fact, some of us remember when very little attention was given to the subject for the reason that it was thought that the disease tuberculosis almost never affected children. Much credit for the great strides which have been made in recent years is due to McPhedran and Opie of the Phipps Institute of Philadelphia, Harrington and Myers of Lymanhurst School in Minneapolis, Bronfin of the National Jewish Sanatorium in Denver, and others, for the splendid research work which they have carried out. Credit should also be given to the Metropolitan Life Insurance Company for the liberal financial backing which it has provided in order that much of this research work could be made possible.

The term "childhood tuberculosis" was adopted by the National Tuberculosis Association to mean a first infection with the tubercle bacillus. This infection, though much more common in childhood, is not confined to that age, but may happen at any age in which the individual is first exposed to an infecting dose of tubercle bacilli.

During the past decade, especially, many studies of the incidence of tuberculosis in infancy and childhood have been made. In 1925 a study was begun by Dickey and Seitz of San Francisco, in which a series of 3500 children had the tuberculin test. This was an unselected group which registered for various complains in the children's clinic at Stanford University Medical School. The intracutaneous test, according to the method of Mantoux, was used, the dose of Koch's Old Tuberculin being 0.1 cc. of a 1:1000 solution, or .1 of a milligram of tuberculin. Of the 3500 children of ages varying from one to fourteen years, 824, or 23.5 per cent, gave a positive reaction. The percentage of reactions gradually increased with advancing age from 6 per cent at the age of one year, to 43.9 per cent at the age of 14. A study of 2,118 Minneapolis school children, by Harrington and Myers, resulted in a positive Mantoux test in 48.76 per cent of males and 45.89 per cent of females. Kons reports the results of a study of the children in a rural section in Cattaraugus County, New York, which was begun in December, 1929, and completed in December, 1930. The tuberculin test was given to 1,103 apparently healthy school children, with the result that 112, or 10.6 per cent, showed a positive reaction, thus indicating that the incidence of tuberculosis is less in the average rural district than in cities. In all of these series very few positive reactions were had in children under five years of age, and the incidence gradually increased to the age of fourteen.

The two important avenues of infection in childhood are the respiratory and digestive tracts. The inhalation of the specific organism as a result of exposure to an open case of tuberculosis, is undoubtedly the most common mode of infection; the ingestion of contaminated food—such as milk from tuberculous cows, or food which has been handled by careless tuberculous individuals, or that which has been infected by flies—being second.

As a result of the enormous amount of research work which has been done in recent years by Ghon, Opie, and many others, our knowledge of the pathology of childhood tuberculosis has been greatly enriched. Prior to this extensive research, the primary lesion was believed to be in the lymphatic system. Now it is known that the original lesion takes place where the bacillus finds its lodgment, and the infection is then taken up by the regional lymph nodes. If the bacillus enters the system by way of the tonsil, the primary lesion occurs here, and the infection later appears in the lymph glands of the neck and mediastinum. If, instead, the organism is carried down the respiratory tract into the lung parenchyma, the original lesion results there, and a lesion appears secondarily in the tracheobronchial lymph nodes. If infected material enters by way of the intestinal tract, then the primary lesion is usually located in the wall of the intestine and is secondarily taken up by the mesenteric and other glands in that region. In most cases, especially where the infection is not massive, the primary lesion heals and then calcification takes place, but the regional lymph glands retain the infective organism for an indefinite time. When this cycle is complete, we have the condition to which the term "latent" or "concealed" tuberculosis is applied. The term should not be taken too literally since many of these lesions are slowly progressive. In fact, there is no sharp line between latent and manifest or clinical tuberculosis, and some latent lesions are more extensive than those which produce recognizable symptoms.

Lodmell examined 1,412 children at the Lyman-

hurst School in Minneapolis for the presence of primary foci of tuberculosis. In the entire group, 232 children showed roentgen-ray evidence of such foci in the lungs. These primary foci, commonly known as Ghon's tubercle, were most commonly found in the lower lobes, particularly on the right side. A much smaller number was found in the upper lobes and the smallest number in the right middle. Inasmuch as 45 per cent of the total group of 1,412 cases reacted positively to the tuberculin test, and only 232 presented x-ray evidence of primary foci in the lung parenchyma, it would appear that many primary foci develop elsewhere.

The symptoms in the childhood type of tuberculosis are not now evaluated very highly for the reason that many children who show a positive reaction to tuberculin and roentgen-ray evidence of infection, do not exhibit any real symptoms of the disease. On the other hand, many will present such symptoms as lassitude, lack of endurance, loss of weight, increased pulse rate, afternoon temperature —usually without expectoration—and pleurisy, so that we cannot entirely disregard a consideration of symptomatology. Chadwick finds a relatively large percentage of tuberculosis in children who are 25 per cent underweight, but suggests that weight for height and age is not a reliable guide in search for children with latent tracheobronchial gland disease, and states further that many of their outstanding cases have been up to and above weight.

In the diagnosis of tuberculosis in children, we at one time placed considerable dependence upon physical signs, symptoms, and laboratory examinations. Now we know that physical signs are of very little value. The old signs of d'Espine and Eustace Smith are of practically no value. Such signs as changes in whispered voice sounds and rales persisting after cough, often of such great value in adults, give us almost no help in the diagnosis of tuberculosis in children. Laboratory examinations, likewise, give us very little reliable data, for the reason that most children with the childhood type of tuberculosis do not have tubercle bacilli in the sputum. In a small percentage of cases where the child has a definite cough, but does not expectorate, bacilli may be found in the washings from the stomach.

The three phases of the examination which are dependable and which give us tremendous aid are: the history, the tuberculin test, and the x-ray examination.

The history of exposure to tuberculosis is of great importance, for we believe that, if a child is exposed over a sufficiently long period of time, he will become infected with tubercle bacilli. In many cases one will fail to get a history of exposure, when, if a careful search among the child's associates is made, spreaders of bacilli will be revealed which have not been suspected. One must take into consideration also the possibility of infection through dairy herds. We are dealing with a communicable disease; therefore, every child who has the childhood type of tuberculosis has had direct contact with a person or animal suffering from tuberculosis or acting as a carrier of tubercle bacilli. In studying the relationship of exposure to infection in 2000 children examined at Lymanhurst, Magiera divided the cases into the following groups: (1) definite history of exposure, (2) questionable or unsatisfactory history of exposure, and (3) no history of exposure. Among these cases 761 gave histories of intimate contact with definitely tuberculous patients; 784 had no knowledge of ever having come in contact with a tuberculous patient; and 455 gave such histories that not enough evidence could be gathered to warrant a definite statement. Of those who had been definitely exposed to tuberculosis, 435 presented positive reactions to the Pirquet test; of those with no history of exposure, 224 were positive, and in those with questionable history, 174 were positive.

The tuberculin test is of tremendous importance and is now accepted as a most reliable procedure. Several methods of applying the test have been proposed and used, but the two which are preferred and used almost exclusively are the Pirquet, or epidermal method, and the Mantoux, or intracutaneous method, with the latter considered more dependable and therefore now being more generally used. Myers of Minneapolis concludes that "by comparative work of more than twenty years of the tuberculin test, we are able to crystallize the fact that the intracutaneous is the most accurate method of all. Therefore, this should become the standard tuberculin test, so that for all future work the results of tuberculin testing of one community can be safely compared with those of another."

The technic of the Mantoux, or intracutaneous, method, is as follows: A site on the upper part of the anterior surface of the forearm is selected and the skin is made clean by the use of soap and water or alcohol. A No. 26 hypodermic needle is used, and a dose of 1/10 cc. of a 1:1000 solution of tuberculin is injected slowly into the skin (intracutaneously). This gives a dose of 1/10 of a milligram. No dressing or application to the arm is necessary. There is

very little pain resulting from the procedure, and no general reaction should result. In forty-eight hours if the reaction is positive there should be a sharply defined area of redness of the skin and slight edema extending approximately half an inch around the point where the needle entered the skin. If the reaction does not appear in forty-eight hours, and thre is reason to suspect that the child is infected, a larger dose may be used, even as much as one milligram of tuberculin. The test is void of any untoward effects and is most reliable from a diagnostic standpoint. In the past Koch's old tuberculin has been the preparation in general use. Recently the Committee on Medical Research of the National Tuberculosis Association has perfected a human-tubercle-bacillus protein to which they have given the name MA 100. It is used in a similar manner to Koch's old tuberculin and possesses some advantages over that preparation. A supply of it and literature concerning it may be obtained from the National Tuberculosis Association, 450 Seventh Avenue, New York.

Krause has pointed out the fact that the tuberculin test has its greatest value in a negative way. In many communities the number of children reacting positively will be small, and if we reduce the number of opportunities for children to be exposed in those communities we should expect the number of infected children to become smaller, until finally tuberculosis infection will be reduced to a minimum.

It is a well-known fact that occasional persons with frank tuberculosis will react negatively to the tuberculin test. This is true both in children and adults, but the condition is so rare that it may be almost ignored.

The x-ray is undoubtedly the most valuable aid which we have in the diagnosis of childhood tuberculosis. If possible, films should be made of the chest of every child who shows a positive reaction to tuberculin. If these films reveal no evidence of disease, Myers advises that others be made of the cervical and mesenteric lymph nodes. If evidence of disease is found in the chest, or in the cervical or abdominal region, in the presence of a positive tuberculin reaction, one is reasonably safe in making a diagnosis of tuberculosis, but if the x-ray examination is negative, one cannot say that tuberculosis does not exist, for there may be a lesion so new and so slight as to escape detection by the x-ray. Again, there are lesions in the chest in such obscure positions that the x-ray would not reveal them. In cases where the tubreculin test is positive and the x-ray findings are negative, it is advisable to make other films at intervals of two or three months for a year.

"From the standpoint of the appearance of lesions discovered by x-ray examination, childhood pulmonary tuberculosis of first infection may be divided into the following three types: (a) resolving pneumonic-appearing parenchymal consolidations, which represent early stages of the disease, (b) intrathoracic lymph node calcifications of various degrees, which represent late permanent stages of the disease, (c) Ghon tubercles associated with hilum-node calcifications, which represent late and permanent stages of the disease. These various types of lesions merely represent various developmental stages in the evolution of the pathology produced by a primary tuberculous infection, between which many transitional stages may be noticed. The end result is always the same, except in fatal cases, in that calcification of hilum nodes appears, or that Ghon tubercles develop, associated with calcification of the homolateral hilum nodes."

Childhood tuberculosis, even in the latent stages, is a potential menace to the child. Rathbun, of Cassadaga, New York, after making x-ray studies of 4,700 school children, makes the following deductions: "Among our high and junior high school students, between 70 and 80 per cent of those found recently with pulmonary tuberculosis showed positive evidence of tracheobronchial gland disease, which unquestionably had been present since childhood. This finding is of great significance in connection with the future health prospects of children with tuberculosis of the tracheobronchial glands (comprising in our county 3.3 per cent of the school population), as it indicates that a careful follow-up of this group will lead to the discovery of approximately 70 per cent of all cases of pulmonary tuberculosis developing in our high and junior high school students."

When the disease is discovered during childhood—the earlier the better—and proper precautionary measures are enforced, later development of the adult type will seldom occur. The important measures in the treatment of the tuberculous child are:

1. Removal of sources of infection if possible, preferably by hospitalizing the spreader. Several observers have reported making serial x-ray studies, extending over a period of years, of children who are exposed to open cases of tuberculosis, and in practically all of these there is evidence of frequent new areas of infection. If this infection should at any time be a massive one, adult tuberculosis develops,

thus adding materially to the seriousness of the case. If it is not possible to remove the source and the child cannot be taken away from exposure, the best that we can do is thoroughly to instruct the carrier as to disposal of sputum, and other precautionary measures, which are now well known.

2. Attention to diet, restriction of exercise to the less strenuous forms, an open-air regimen and insistence upon sufficient rest. Where it is possible, special open-air schools, with regular rest periods, should be provided for these children. In most cases it is not necessary to enforce bed rest or even to remove these children from school if the diagnosis is made early. Where the disease appears to be progressive in spite of the measures just suggested, or the diagnosis is not made until the child has developed the adult type, then the same strict routine which is carried out in adults should be enforced.

3. Regular x-ray examinations should be made at least every six months for the first two years, and the child should be kept under observation throughout the adolescent period.

The details of the treatment of tuberculosis are too well known to justify its further discussion here.

If the diagnosis of latent or childhood tuberculosis is made early in the life of the child, and proper measures are carried out through childhood, youth, and adolescence, these will contribute more to the reduction of the mortality from tuberculosis than anything which we know about.

DISCUSSION

DR. C. F. MILLIGAN, Clayton, N. M. (opening): I attempt to discuss Dr. Homan's paper with a good deal of hesitancy, as I know very little about tuberculosis. There are a few practical points Dr. Homan brought out that should be stressed; and the paper is a timely warning to those of us in the medical profession who are treating children. We have a lot of tuberculosis in childhood, especially among our Spanish-American people, who have not acquired the immunity we have. Their living conditions are bad and this is one reason for tuberculosis sperading throughout the country. I believe the medical profession is sleeping on its rights. What is the use of studying these conditions unless we try to put regulations into effect and improve them. We do not have x-ray machines out in the country and it is pretty hard to pick up tuberculous lesions with a stethoscope, but we can try the tuberculin test, which will help the general man in a good many ways. We pretend to examine teachers to see if they have infectious diseases, but let these children go on and drink out of the same common drinking cups; they use slates, spit on them and pass them around, and in many ways have every opportunity for contamination. We must do something about these things and do it early if we are going to shut out tuberculosis in the children in New Mexico.

DR. R. O. BROWN, (Santa Fe, N. M.): It seems to me in parts of New Mexico where we do not have x-ray machines that it is sometimes also very difficult to get a cutaneous test for tuberculosis when the patients have to come a long distance. As far as I can make out from meetings of the National Tuberculosis Association and the journals, a large part of the diagnosis of childhood tuberculosis depends on the x-ray. which is not available to many of us here, and will not be until we have a little more state medicine, or something of that sort, and run the rural poor children in where they can get an x-ray examination. We have a lot of cases of tuberculosis among our native population and it is more or less rapidly spreading, but I do not see how a great many districts in this state are going to get x-ray machines to the children or a large share of the children to the apparatus.

DR. W. C. BUCHLY, (Roswell, N. M.): I was very much interested in Dr. Homan's paper and especially in what he said in regard to tuberculin. I have been a little afraid to use tuberculin for diagnosis. We all know there is still a lot of talk in the literature about the danger in its use. I have used it therapeutically with success and would like to use it as a diagnostic measure. About two years ago I had a child with pain in the abdomen, colicky pains at times, and a little fever. I had my suspicion of some infection as there had been tuberculosis in the family. They then took the child to the mountains and kept him there for a while. Then the father carried him to a clinic, where a diagnosis of typhoid fever was made. He then came back to me, but I could not make a positive diagnosis. I inferred it was tuberculosis and sent him down to El Paso. I should like to ask Dr. Homan if he has ever had any trouble in using tuberculin diagnostically. In some cases like this of mine it would be a mighty good thing to use if safe.

DR. J. MOTT RAWLINGS, (El Paso, Texas): This is a subject in which I have been very much interested for a long time. In Boston we saw a lot of pathology, particularly as regards tuberculosis in children. From examination of a great many cases in children, the incidence is far higher than we think. Dr. Opie has done autopsies on some 1200 children, and found at five years of age, 11 per cent; at 11 years of age, 45 per cent; at 14, 65 per cent; and at 18, 95 per cent, with tuberculosis, all types. In clinical tests of school children by the Mantoux method there was latent tuberculosis in about 2 per cent of all school children at large; 5 per cent with manifest tuberculosis, or tuberculosis that could be proved by the Mantoux tests and x-ray. The x-ray alone is not infallible. Dr. Sam Crowe of Johns Hopkins has carefully sectioned tonsils removed from children and has shown that tuberculosis of the tonsils is of fairly frequent

appearance. That is a source we must not forget especially when there are large cervical lymph nodes. I have been doing autopsies on children since 1924 and have seen a large number of children who have died of meningitis, in which the lymph nodes involved were very slight, with small caseous nodes hidden behind. Then there were a number who had tuberculosis of the brain stem and died from tuberculous meningitis. There were a few cases in which the mesenteric involvement was predominant and the thoracic involvement was very slight.

In Minneapolis the men have done some wonderful work. They have been studying childhood tuberculosis in every possible phase. They believe that without question a very large precentage of adult tuberculosis starts in childhood and breaks out later at the period of life when the stress and strain of living becomes heavier, and is not due to contact, but because their childhood tuberculosis was not cured. It starts out early and progressively increases on up to adult life. We should keep in mind the vast importance of this condition.

DR. HOMAN (closing): I very much appreciate the free discussion of my paper. Dr. Brown suggested a very important point to men in general practice in the country, not accessible to x-rays. Such a large percentage of people have open cases of tuberculosis in the family that every man in general practice should determine whether there is or has been an open case in the family where he has practice.

In such cases, when a child seems to be sick, precautionary measures should be used in the care of the children, and specific instructions should be given to the family as to their future mode of living and school work These children are very precocious in schools; they lead their classes. You will frequently find that the hunchbacks lead their classes. It is not because they cannot play, but because the stimulation of the poison of tuberculosis works on the brain so that they are several years ahead of others of their age. Do not let the teachers put those children ahead of their class because they are especially bright. Control schoolwork and control play in families where there is an open case in the family of a neighbor or any place where the child may come in contact.

As to the tuberculin test, nobody has found any ill effects from properly regulated dosage. We use one-tenth of a milligram. Used in the skin it does not give any general reaction, consequently it is hardly possible to get any bad results. Some people have to be educated to using this test, just as with the Schick test.

In regard to lesions in the lungs, where you fail to find anything in x-rays of the chest of children who respond positively to the tuberculin test, make an x-ray of the glands of the mesenteric region and of the neck, as infection in these may account for the reactions.

REPORT OF CASE OF FOREIGN BODY IN THE BLADDER

A. W. MULTHAUF, M. D.,
El Paso, Texas

(Read before the El Paso County Medical Society, El Paso, Texas, September 25, 1933).

This case is not presented on account of its unusual aspect, but rather, to emphasize a practical point that was picked up as a matter of necessity and quite by accident. The case report follows:

A middle-aged woman, apparently in good health, called her family physician and informed him that she had introduced a thermometer into her urethra and had lost it. She informed her doctor that she had been told that it was possible to get a more accurate temperature reading by the introduction of the thermometer into the urethra. This she gave as her excuse for what she had done.

Upon vaginal examination. the doctor could feel the thermometer in the urethra, the end being about an inch from the external urethral meatus. With one finger in the vagina to steady the thermometer and prevent its slipping further into the bladder, he introduced a clamp and was able to grasp the end of the thermometer with it. The patient, not being very cooperative, made a sudden move, with the result that the thermometer slipped entirely into the bladder.

Upon introduction of the cystoscope, the foreign body was noted lying crosswise in the bladder. The bladder itself was in spasm, with the result that both ends were impinged in the bladder mucosa. The usual instruments used for the extraction of foreign bodies in the bladder were used, but the metal would not hold on glass body. On account of the ends being impinged by the bladder spasm into the bladder mucosa, it was impossible to loop the body to deliver it in the same axis as the cystoscope. We, fortunately, had some beeswax with us, which was softened by heat and then liberally smeared over the jaws on the rongeur. The rongeur was again introduced ,the foreign body grasped and delivered in the same axis as the scope without slipping from the jaws, and extracted.

I present this case, not because of the fact that foreign bodies in the bladder are considered rare, but rather to bring out a point that might be employed by almost anyone, when faced with a similar condition.

PUBLIC HEALTH NOTES

J. ROSSLYN EARP, D. P. H.
Director New Mexico State Bureau of Public Health.

THE AMERICAN PUBLIC HEALTH ASSOCIATION

"It has been a pleasure to be among you. I think that was the word that Daniel said when he left the lions' den." Thus Dr. Fishbein concluded the discussion of his paper on Responsibility for the Health Program before the nation's health officers assembled in their sixty-second convention. And he was warmly applauded. The cheers were for his forthrightness and dialectic skill as much as for his inimitable wit. Much that he had to say ran athwart of popular sentiment in that meeting, but even his worst enemies there could not fail to pay tribute to his courage and ability in debate.

Looking back on the discussion, one takes comfort in one basic principle which was warmly embraced by partisans on each side; to wit, that in organizing public health it is the interest not of the public health profession, not of the private profession of medicine, but the interest of the public, that is paramount. On both sides I think we are a little inclined to suspect that the other side pays only lip homage to this principle. Let us try to believe that the great majority of physicians in both camps are sincere in their adherence to this principle. It will clear the atmosphere of a good many sulphurous fumes.

When that is granted, there is still a real difference of opinion as to where the public's best interest may lie. And the solution offered by several speakers, that we invite the public to sit in on our debates and decide for themselves, strikes me as being somewhat a counsel of despair.

The public health men say: We want the private practitioner to immunize the children, but he will not, or at least he does not, do it. The doctors, in the mouth of Dr. Fishbein, reply: As long as the public can get inoculation free at your clinics, of course they will not pay a fee for the same service in our offices. There is truth in both contentions, though neither constitutes the whole truth.

For my part, while I am open to conviction, I cannot at present conceive of any organization of private medicine which could have achieved the results reported by Dr. Bundesen from the Chicago department of health. There, by the concentration of his public health organization on the diphtheria campaign, he has achieved the immunization against diphtheria of 90 per cent of the population at eighteen months of age, and diphtheria has apparently been wiped out. This is a notable achievement and a valuable demonstration. It may not be the most economical or the most admirable method that can be devised, but it has the hall mark of accomplishment.

Next month I shall have more to say of this conference. Let me add one piece of stop press news: Dr. Park has found that immunization against typhoid fever may be accomplished by the intradermal injection of one-tenth of the usual subcutaneous dose. The results in protection are as good and the reactions are never more than minimal.

TREATY WITH SPAIN

The Spanish consul at Galveston, Texas, has asked me to draw attention to the following provision of a treaty between the United States and Spain:

> In case of the death of a citizen of one of the Parties in the territory of the other, the competent local authorities must give notice of the fact to the Consul or Consular Agent of the nation to which the deceased belonged, to the end that immediate information may be given to the interested Parties.

CHRISTMAS SEALS, 1933

New Mexico readers are hereby requested to make a special effort to promote the sale of tuberculosis Christmas seals in their respective communities this year. A health survey of New Mexico, sponsored by the New Mexico Tuberculosis Association, endorsed by the State Medical Society, and supported by three national associations, will depend to a great extent for its financial backing upon the success of the seal sale. It is hoped to begin the survey early in 1934. Progress will be reported in this column from time to time.

GASTRIC ANACIDITY, Its Relations to Disease by Arthur L .Bloomfield, M.D., Professor of Medicine, Stanford University, San Francisco, California, and W. Scott Polland, M.D., Instructor in Medicine, Stanford University, San Francisco, California; New York; The MacMillan Company; $2.50; 1933.

This is a monograph of 188 pages—12 chapters. The following is a terse statement of their thesis as read by the reviewer.

Gastric anacidity is a functional state, temporary or permanent, and means a total inability of a stomach to secrete acid. The authors use the term only to include those cases which show no acid after a standard histamine stimulus. With true anacidity there is also a lack of ferments; hence anacidity always implies lack of pepsin. Gastritis, it seems, exists wherever anacidity prevails. It is not proven that anacidity bears a definite etiologic relationship to any disease, although with pernicious anemia and cancer anacidity prevails so commonly that it would seem that causal relationship might almost be accepted.

The authors recommend substitution treatment by the use of dilute hydrochloric acid if digestive symptoms, especially diarrhea are present. O. H. B

WHO IS WHO ON THE PROGRAM

INTRODUCING

ORVILLE HARRY BROWN, A.B., Ph.D., M.D., F.A.C.S., of Phoenix, who will present the first paper, in the Symposium on Allergy, using the subject of "Food Allergy." Formerly Assistant Professor of Medicine in St. Louis University School of Medicine; author of a standard book on "Asthma"; internist in the Phoenix Clinic.

This paper will be discussed by DR. G. WERLEY, Internist, of El Paso, best known for his researches in the pathology of cardiac disease.

MAJOR HAROLD E. RAYCROFT, of the William Beaumont General Hospital, will address the Clinical Luncheon on Thursday, Dec. 7, on "Impressions of China." This address will be one of the high lights of the meeting, and no one should miss it.

R. A. WILSON, M. D., of Tucson, who is associated with the Thomas-Davis Clinic, and who treats the allergic diseases for that group, will present a paper on Hay Fever, bringing to the Association the latest ideas and researches in this important field.

F. M. SMITH, M. D., of Raton, N. M., will present a paper on "Hay Fever and Asthma as Seen by the General Practitioner." This should be an interesting subject, as the general practitioner usually sees the patients first and must usually treat the majority of them.

The discussion of the two papers on Hay Fever will be opened by DR. GEORGE TURNER, Director of the Turner Laboratories of El Paso.

CHARLES S. KIBLER, M.D., S.B., F.A.C.P., who handles the general medical work of the Tucson Clinic, will present a paper on "Methods of Allergic Study." Dr. Kibler is well and favorably known for his work in internal medicine.

The paper will be discussed by DR. L. O. DUTTON, pathologist for the Cathcart, Mason & Dutton Clinic of El Paso. Dr. Dutton is best known for his work on bacteriophage, having won national recognition for this before coming to El Paso.

HOWELL RANDOLPH, A.B., A.M., M. D., A. A. C. P., Phoenix; Associate Director of St. Luke's Home for Tuberculosis, specializing in diseases of the heart and lungs, will present a paper on "Insect Dust as a Cause of Hay Fever and Asthma."

DAVID M. DAVIS, M. D., Phoenix, formerly associated with Dr. Hugh H. Young, Professor of Urology of Johns Hopkins University, and co-author with him of Young's Practice of Urology, will present a paper on "Allergy in Relation to the Urogenital Tract. Dr. Davis is a member of the American Urological Association, and appears frequently on their programs.

His paper will be discussed by DR. A. W. MULTHAUF, of El Paso, one of the prominent urologists of the southwest.

E. A. GATTERDAM, M. D., of Phoenix, will give the latest ideas on "Allergy in Relation to the Nose and Throat." Dr. Gatterdam was formerly on the medical staff of the Veterans Hospital at Whipple. Ariz., and formerly was Associate Director of St. Luke's Home in Phoenix. His work in chest diseases, asthma and other allergic conditions is well known throughout Arizona.

BLOYCE BRITTAIN, M. D., of El Paso, a prominent eye, ear, nose and throat specialist, will open the discussion of Dr. Gatterdam's paper.

MARTIN B. TINKER, M.D., F.A.C.S., one of the leading surgeons of New York, is coming by invitation to give an address on Tuberculosis and Malignancy of the Thyroid Gland. His talk will be illustrated by lantern slides and is the only invitation paper of the meeting.

J. E. SHERMAN, M. D., of El Paso, who recently came from Cincinnati, to be on the staff of St. Joseph's Sanatorium, will give a paper on "Allergy in Tuberculosis." This is one of the most important fields of allergic investigation.

The second day's symposium on tuberculosis will be introduced by ORVILLE EGBERT, M. D., of El Paso, who is the Physician in Chief of St. Joseph's Sanatorium.

JOHN W. FLINN, A.M., M.D., C.M., F.A.C.P., of Prescott, is Medical Director of Pamsetgaaf Sanatorium and of national reputation as a worker in chest diseases. Associated with him are his two sons; ROBT. S. FLINN, M.D., F.A.C.P., practices in Prescott and Phoenix, and ZEBUD M. FLINN, M.D., formerly of Albuquerque, is now located at the Sanatorium in Prescott.

They will jointly present two papers; one on Broncho-moniliasis, giving the results of several years research and clinical observation; the other on Heliotherapy in Tuberculosis of Bones and Joints, giving the results of their own work and of observations of Rollier's work in Switzerland.

W. WARNER WATKINS, M. D., F. A. C. P., F. A. C. R., of Phoenix, Radiologic Director of Pathological Laboratory, will give a paper on "Chronic Inflammation in the Lung, with Special Reference to Silicosis." This condition is of increasing importance, and every physician should be thoroughly acquainted with its pathology and industrial significance.

DR. W. W. GAY, of El Paso, who is Chief Surgeon for the American Refining and Smelting Company, will open the discussion on Broncho-Moniliasis and Silicosis.

J. ROSSLYN EARP, Dr. P. H., Director of the Bureau of Public Health of New Mexico, Santa Fe, N. M., has been invited to address the Clinical Luncheon meeting on Friday. He will talk on "Childhood Tuberculosis as a Public Health Problem." Dr. Earp's work in New Mexico has been attracting favorable attention the country over, and his appearance before this Association will be looked forward to with great anticipation.

CHARLES F. BARLEY, M. D., of Tucson, pediatrician for the Tucson Clinic, will present the first paper in the afternoon session, on Friday, on "Childhood Tuberculosis; Etiology and Diagnosis." Dr. Barley is a new member of the Association, but he is well known in Arizona for his high class work in his specialty.

MELDRUM K. WYLDER, B.S., M.D., F.A.C.P., of Albuquerque, past president of this Association and of the New Mexico Society, is well and favorably known to all who are acquainted with the profession in the southwest. His annual jaunt to the College of Physicians and report of their program has become an institution in medical literature. Pediatrics is his specialty and he will write on

"Prophylaxis and Treatment of Childhood Tuberculosis."

J. T. McCAMANT, M. D., Health Officer for the City and County of El Paso, will open the discussion on the Public Health phases of childhood tuberculosis.

J. MOTT RAWLINGS, M. D., pediatrician of El Paso, will open the discussion on etiology and diagnosis.

HARRY LEIGH, M. D., pediatrician of El Paso, will open discussion on prophylaxis and treatment.

FRANK GOODWIN, M.D., of El Paso, an orthopedist of note, will discuss the paper of the Drs. Flinn on Bone and Joint Tuberculosis.

E. W. PHILLIPS, M.D., F.A.C.P., Phoenix, Ariz., Medical Director of St. Luke's Home for Tuberculosis (Phoenix) and St. Luke's in the Mountains (Prescott), will give a paper entitled "Does Tonsillectomy Light Up Tuberculosis?" Dr.. Phillips' work in tuberculosis and allergy is known the country over.

DR. FRANK SCHUSTER, M.D., of El Paso, prominent eye, ear, nose and throat specialist, will open the discussion of this paper.

W. G. SCHULTZ, M.D., of Tucson, well known urologist, will present a paper on "Problems in Urogenital Tuberculosis." If time can be found he will also show a moving picture made by himself of prostatectomy. Dr. Schultz has done some outstanding work in his specialty and is as well known outside of Arizona as in his home state.

DR. KELVIN D. LYNCH, of El Paso, in the front rank of urologists of the country, will open the discussion of this paper.

CHAS. W. MILLS, A.B., M.D., F.A.C.P., Associate Medical Director of the Desert Sanatorium at Tucson, Ariz., will present a paper on "Treatment of Cavities." Dr. Mills is a man of experience in clinical medicine and in research, and can give the results of treatment from years of observation.

DR. R. B. HOMAN, Director of the Homan Sanatorium, El Paso, will open the discussion of this paper.

VICTOR RANDOLPH, A.B., M.D., F.A.C.S., of Phoenix, Ariz., will write on "Pneumothorax and Pneumolysis." Dr. Randolph is a specialist in chest surgery, confining his work to this line, has taken post graduate work in Europe, and will bring a demonstration of great value and interest.

J. J. BEATTY, M.D., Tucson, Clinical Director of the Veterans Administration Hospital, will bring another paper giving the results of his observations on tuberculosis with the large number of cases treated in this hospital. The title will be "How Experience Has Changed my Opinions in Regard to Collapse Therapy in the Treatment of Pulmonary Tuberculosis."

DR. FELIX P. MILLER, M. D., of El Paso, well known for his work in chest surgery, one time president of the Texas State Medical Association, will open the discussion on these two papers.

JOHN HUFFMANN, M.D., Tucson, Ariz., who has given special study to diseases of the endocrine glands, will open the symposium on thyroid disease with a paper on "Physiology and Pathology of the Thyroid." Dr. Huffman is a new member of the Association, making his initial appearance with a very important topic.

DR. WILLIS W. WAITE, of El Paso, Director of Waite's Laboratories, one time president of the Association, and chairman of the Program Committee, will open the discussion on this paper.

S. C. DAVIS, M. D., F. A. C. P., of Tucson, Chief of the Medical Staff of the Thomas-Davis Clinic, Medical Director of the Southern Pacific Hospital at Tucson, will bring a paper on "Hypothyroidism." Dr. Davis always brings a paper of great merit, carefully prepared and well presented.

DR. E. W. RHEINHEIMER, of El Paso, has been selected by the Program Committee, to open the discussion on this important subject. Dr. Rheinheimer is a clinician of much experience.

HAL W. RICE, M. D., of Morenci, Ariz., Chief Surgeon for the Phelps Dodge Corporation in Morenci and Clifton, will write on "Indications for Surgical Treatment of the Thyroid." Dr. Rice is a surgeon of good judgment, and always brings a well prepared paper.

J. L. MURPHY, M. D., of El Paso, of the Brown, Brown and Murphy Clinic, will write on "What to Expect from Surgical Treatment." With the material which he will have available, an excellent presentation of the end results of surgical treatment of the thyroid can be expected.

DR. PAUL GALLAGHER, of El Paso, one time president of the El Paso County Medical Society, and always a prominent figure in the Southwestern meetings, will open the discussion on surgical treatment of thyroid disease.

JOHN W. CATHCART, M.D., F.A.C.R., well known radiologist, senior partner in the Cathcart, Mason and Dutton Clinic, will present the case for radiologic treatment of hyperthyroidism, under the title "X-ray and Radium Treatment of Exophthalmic Goitre."

DR. W. WARNER WATKINS, of Phoenix, Radiologic Director of the Pathological Laboratory, will open the discussion of this topic.

J. B. LITTLEFIELD, M.D., F.A.C.S., of Tucson, Ariz., is best known as an urologist, one time associated with the Thomas-Davis Clinic, now in private practice in Tucson. His paper will be on "Reactions in Blood Transfusions." The increasing use of blood transfusion makes this a very important and timely subject.

G. WERLEY, M.D., of El Paso, a familiar figure in our meetings for the past decade, is well known for his original work in heart disease. It is no disparagement to any one to say that Dr. Werley is the outstanding cardiologist of the Southwest, and we might take in considerable more territory and still be free from exaggeration. His remarks on "The Heart in Thyroid Disease" will be awaited with eager anticipation.

Southwestern Medicine

Printed by THE A. C. TAYLOR PRINTING CO., Phoenix, Arizona
Published monthly for the Board of Managers of the four constituent societies.

VOL. XVII. NOVEMBER, 1933 No. 11

EDITORIAL STAF

DR. W. WARNER WATKINS, Box 1587, Phoenix, Arizona ..... Editor in Chief
DR. W. E. VANDEVERE, El Paso, Texas ..... Associate Editor
DR. ORVILLE H. BROWN, Phoenix, Arizona ..... Associate Editor
DR. L. B. COHENOUR, Albuquerque, N. M. ..... Associate Editor

BOARD OF MANAGERS
ARIZONA STATE MEDICAL ASSOCIATION

DR. D. F. HARBRIDGE ..... Phoenix
DR. N. C. BLEDSOE ..... Tucson

EL PASO COUNTY MEDICAL SOCIETY

DR. PAUL GALLAGHER ..... El Paso
DR. W. L. BROWN ..... El Paso

NEW MEXICO STATE MEDICAL SOCIETY

A. B STEWART ..... Albuquerque
P. G. CORNISH ..... Albuquerque

MEDICAL & SURGICAL ASSOCIATION OF THE SOUTHWEST
(Publication Committee)

DR. W. R. JAMIESON ..... El Paso
DR. E. PAYNE PALMER ..... Phoenix
DR. P. G. CORNISH, Jr. ..... Albuquerque

THE MEDICAL AND SURGICAL ASSOCIATION OF THE SOUTHWEST

OFFICERS AND COMMITTEES

President:
F. D. Vickers - - - - Deming, N. M.

President-Elect:
W A. Gekler - - - Albuquerque, N. M.

First Vice President:
David M. Davis - - - - Phoenix, Ariz.

Second Vice President:
Z. E. Funk - - - - Santa Rosa, N. M.

Secretary-Treasurer:
W. Warner Watkins - - Phoenix, Ariz.

Trustees

P. G. Cornish, Jr. - - - Albuquerque, N. M.
E. Payne Palmer - - - - - - Phoenix, Ariz.
W. R Jamieson - - - - - - El Paso, Texas

Membership Committee

J. M. Greer, *Chairman* - - - Phoenix, Ariz.
Orville Egbert - - - - - - El Paso, Texas
Meade Clyne - - - - - - - Tucson, Ariz.
Frank J. Milloy - - - - Phoenix, Ariz.
M. K. Wylder - - - - Albuquerque, N. M.

Constitutional Revision Committee

W. Warner Watkins, *Chairman* - Phoenix, Ariz.
Willis W. Waite - - - - - - El Paso, Texas
J. R Van Atta - - - - - Albuquerque, N. M.

General Program Committee

Willis W. Waite, *Chairman* - - El Paso, Texas

El Paso County Medical Society Committees.

Scientific Exhibits: Willis W. Waite (Chairman), J. W. Cathcart and George Turner.

Clinics: James Gorman (Chairman), Chester Awe, E. W. Rheinheimer, Paul Gallagher, J. H. Gambrell, H. E. Stevenson, F. P. Miller, F. O. Barrett, F. P. Schuster, K. D. Lynch.

Reception: T. J. McCamant (Chairman), Harry Leigh and A. W. Multhauf.

Entertainment: Bloyce Brittain (Chairman), E. W. Rheinheimer and Chester Awe.

Transportation and Hotels: F. P. Miller (Chairman), H. E. Stevenson and H. H. Varner.

Publicity: Mott Rawlings (Chairman), John Murphy and John Morrison.

Golf: Ralph Homan (Chairman), W. L. Brown and W. E. Vandevere.

Registration: Leslie M. Smith, Chairman.

Women's Auxiliary: Mrs. M. P. Schuster, Chairwoman.

PROGRAM

NINETEENTH ANNUAL MEETING

EL PASO, DECEMBER 7, 8 and 9, 1933
Headquarters—Hotel Hussman.
(El Paso Club)

THURSDAY, DECEMBER 7
10 a. m.

Call to Order by President F. D. Vickers.
Announcements.
Committee Reports.
Induction of the President-Elect, Dr. W. A. Gekler, Albuquerque, N. M.

SYMPOSIUM ON ALLERGY.

Paper: *Food Allergy*, by
Orville H. Brown, M. D., Phoenix, Ariz.
Discussion to be opened by
Dr. G. Werley, El Paso.

12 Noon Clinical Luncheon.

Address by
Major Harold E. Raycroft, William Beaumont General Hospital—*"Impressions of China."*

1:30 p. m.

Paper: *Hay Fever*, by
R. A. Wilson, M. D., Tucson, Ariz.

Paper: *Hay Fever and Asthma as Seen by a General Practitioner*, by
F. F. Smith, M. D., Raton, N. M.
Discussion of above two papers to be opened by
Dr. Geo. Turner, El Paso.

Paper: *Methods of Allergic Study*, by
C S. Kibler, M. D., Tucson, Ariz.
Discussion, with demonstration of cases, by
Dr L. O. Dutton, El Paso.

Paper: *Insect Dusts as a Cause of Hay Fever and Asthma*, by
Howell Randolph, M. D., Phoenix. Ariz.
Discussion.

Paper: *Allergy in Relation to the Urogenital Tract*, David M. Davis, M. D., Phoenix, Ariz.
Discussion to be opened by Dr. A. W. Multhauf, El Paso.

Paper: *Allergy in Relation to Lesions of the Nose and Throat*, by E. A. Gatterdam, M. D., Phoenix, Ariz.
Discussion to be opened by Dr. Bloyce Brittain, El Paso.

Paper: *Allergy in Tuberculosis*, by J. E. Sherman, M. D., St. Joseph's Sanatorium, El Paso.
Discussion.

Paper: *"Reactions in Blood Transfusions,"* by J. B. Littlefield, M. D., Tucson, Ariz.

8:00 p. m., SHARP.

Clinic at Wm. Beaumont Hospital.

Every one is invited to attend this. This Clinical demonstration has been given at every meeting of the Association held in El Paso since the hospital was founded, and has become known as the outstanding feature of the program.

FRIDAY, DECEMBER 8.

10 a. m.

SYMPOSIUM ON TUBERCULOSIS

Introduction of Symposium, by Orville Egbert, M. D., Superintendent of St. Joseph's Sanatorium, El Paso.

Paper: *Broncho-Moniliasis*, by John W. Flinn, M. D., Robt S. Flinn, M. D., and Zebud M. Flinn, M. D., Prescott, Ariz.

Paper: *Chronic Inflammation in the Lungs, with Special Reference to Silicosis*, by W. Warner Watkins, M. D., Phoenix, Ariz.
Discussion of above two papers to be opened by Dr. W. W. Gay, El Paso.

12 Noon. Clinical Luncheon.

Address by J. Rosslyn Earp, Dr. P. H., Director of Bureau of Public Health of New Mexico, Santa, Fe, N. M.
"Childhood Tuberculosis as a Public Health Problem."

Paper: *Childhood Tuberculosis; Etiology and Diagnosis*, by Chas. F. Barley, M. D., Tucson, Ariz.

Paper: *Childhood Tuberculosis; Prophylaxis and Treatment*, by M. K. Wylder, M. D., Albuquerque, N. M.
Discussion of Childhood Tuberculosis will be opened by Drs. J. T. McCamant, El Paso, on Public Health; J. Mott Rawlings of El Paso on Etiology and Diagnosis; and Harry Leigh of El Paso on Prophylaxis and Treatment.

Paper: *Heliotherapy in the Treatment of Tuberculosis of Bones and Joints*, by John W. Flinn, M. D., Robt. S. Flinn, M. D., and Zebud M. Flinn, M. D., Prescott, Ariz.
Discussion will be opened by Dr. Frank Goodwin, of El Paso, with presentation of cases treated surgically.

Paper: *Does Tonsillectomy Light up Tuberculosis?* E. W. Phillips, M. D., Phoenix, Ariz.
Discussion to be opened by Dr. Frank Schuster, El Paso.

Paper: *Problems in Genito-Urinary Tuberculosis*, W. G. Schultz, M. D., Tucson, Ariz.
Discussion to be opened by Dr. K. D. Lynch, El Paso.

Paper: *Treatment of Cavities*, by Chas. W. Mills, M. D., Tucson, Ariz.
Discussion to be opened by R. B. Homan, El Paso.

Paper: *Pneumothorax and Pneumolysis*, by Victor Randolph, M. D., Phoenix, Ariz.

Paper: *How Experience has Changed My Opinions in Regard to Collapse Therapy in the Treatment of Pulmonary Tuberculosis*, by J. J. Beatty, M. D., Tucson, Ariz.
Discussion on Surgical Treatment will be opened by Dr. Felix P. Miller, of El Paso, with demonstration of cases.

8:00 p. m. Annual Dinner.

President's Address, by Dr. W. A. Gekler, Albuquerque, N. M.

SATURDAY, DECEMBER 9

10 a. m.

SYMPOSIUM ON THYROID DISEASE

(Papers on the Tuberculosis Symposium not presented on Friday will be given at this time.)

Paper: *Physiology and Pathology of the Thyroid*, by John Huffman, M. D., Tucson, Ariz.
Discussion will be opened by Dr. Willis W. Waite, El Paso.

Paper: *Hypothyroidism*, by S. C. Davis, M. D., Tucson, Ariz.
Discussion to be opened by Dr. E. W. Rheinheimer, El Paso.

Paper: *Indications for Surgical Treatment*, by Hal W. Rice, M. D., Morenci, Ariz.

Paper: *What to Expect from Surgical Treatment*, J. L. Murphy, El Paso.
Discussion of these two papers will be opened by Dr. Paul Gallagher, El Paso.

Paper: *X-ray and Radium Treatment of Exophthalmic Goitre*, by John W. Cathcart, El Paso.
Discussion will be opened by Dr. W. Warner Watkins, Phoenix, Ariz.

Paper: *"The Heart in Thyroid Disease,"* by Guy Werley, M. D., El Paso.

Address: *Tuberculosis and Malignancy of the Thyroid*, by Martin B. Tinker, M.D., F.A.C.S., Ithaca, N. Y. (By invitation.)
General Discussion on Medical Treatment, Complications, and Laboratory Aids in Diagnosis, as well as the papers presented.

HISTORICAL

Organization meeting in El Paso, in 1913, with Dr. S. D. Swope, of Deming, N. M., presiding.

First Annual Meeting, in El Paso, in 1914; Dr. R. L. Ramey, of El Paso, President.

Second Annual Meeting, in El Paso, in 1915; Dr. John E Bacon, of Miami, Ariz., President.

Third Annual Meeting, in Albuquerque, N. M., in 1916 Dr. A G. Shortle, Albuquerque, President; Dr. J. R. Van Atta, Albuquerque, Secretary.

Fourth Annual Meeting in Phoenix, Ariz., in 1917: Dr. Joel I. Butler, Tucson, President; Dr. J. R. Van Atta, Albuquerque, N. M., Secretary-Treasurer.

(No meeting in 1918.)

Fifth Annual Meeting in 1919, in El Paso; Dr. P. G. Cornish. Sr, President (in Service); Dr. W. Warner Watkins. First Vice President, presiding; Dr. J. R. Van Atta, Albuquerque, Secretary-Treasurer.

Sixth Annual Meeting, Dec. 2-4, 1920, in El

Paso; Dr. W. Warner Watkins, Phoenix, President; Dr. J. R. Van Atta, Albuquerqque, Secretary-Treasurer.

Seventh Annual Meeting, Dec. 1-3, 1921, in Phoenix; Dr. James Vance, El Paso, President; Dr. J. R Van Atta, Albuquerque, Secretary-Treasurer.

Eighth Annual Meetnig, Dec. 7-9, 1922, in El Paso; Dr. M. K. Wylder, Albuquerque, President; Dr. Harry R. Carson, Phoenix, Secretary-Treasurer.

Ninth Annual Meeting, Dec. 11-13, 1923, in El Paso; Dr. R. D. Kennedy, Globe, President; Dr. Harry R. Carson, Phoenix, Secretary-Treasurer.

Tenth Annual Meeting, Nov. 6-8, 1924, in Phoenix; Dr. J. R. Van Atta, Albuquerque, President; Dr W. Warner Watkins, Phoenix, Secretary-Treasurer.

Eleventh Annual Meeting, Nov. 5-7, 1925, in El Paso; Dr. H. H. Stark, El Paso, President; Dr. W. W. Watkins, Phoenix, Secretary-Treasurer. (Dr. Willard Smith, First Vice-President, presided, owing to Dr. Stark's serious illness.)

Twelfth Annual Meeting, Nov. 11-13, 1926, in Tucson; Dr. Willard Smith, Phoenix, President; Dr. W. W. Watkins, Phoenix, Secretary-Treasurer.

Thirteenth Annual Meeting, Nov. 2-5, 1927, in El Paso; Dr. Willis W. Waite, President; Dr. W. W. Watkins, Phoenix, Secretary-Treasurer.

Fourteenth Annual Meeting, Nov. 8-10, 1928, in Albuquerque; Dr. Hugh Crouse, El Paso, President; Dr. W. W. Watkins, Secretary-Treasurer. (On account of the serious illness of Dr. Crouse, Dr. P. G. Cornish, Jr., First Vice President, presided.)

Fifteenth Annual Meeting, Nov. 7-9, 1929, in Phoenix; Dr. P. G. Cornish, Jr., Albuquerque, President; Dr. W. W. Watkins, Phoenix, Secretary-Treasurer.

Sixteenth Annual Meeting, Nov. 6-8, 1930, in El Paso; Dr. E. Payne Palmer, Phoenix, President; Dr. W. W. Watkins, Phoenix, Secretary-Treasurer.

Seventeenth Annual Meeting, Dec. 3-5, 1931, in Phoenix; Dr. W. R Jamieson, El Paso, President; Dr. W. W. Watkikns, Phoenix, Secretary-Treasurer.

Eighteenth Annual Meeting, Dec. 8-10, 1932, at Albuquerque; Dr. W. R. Jamieson, El Paso, President (second term on account of change in constitution); Dr. W. W. Watkins, Secretary-Treasurer (Dr. W. A. Gekler, First Vice President, presided, on account of Dr. Jamieson's enforced absence)

Nineteenth Annual Meeting, to be held in El Paso, Dec. 7-9, 1933. Dr. F. D. Vickers, of Deming, N. M., will preside. Dr. W. A. Gekler, President-Elect, of Albuquerque, will be inducted into the office of President. Dr. W. W. Watkins, Phoenix, Secretary-Treasurer.

JAMES H. JOHNSON

(Las Cruces, N. M.)

Dr. James H. Johnson, of Las Cruces, N. M., a practitioner for thirty years in that state, died on Sept. 28th, of peritonitis. Dr. Johnson was licensed in New Mexico in 1901, was a member of the county and state medical societies. He was 75 years of age.

WILLIAM T. JOYNER

(Roswell, N. M.)

Another pioneer physician of New Mexico passed from the earthly scene of action on October 12th, when Dr. William T. Joyner, of Roswell, succumbed to pneumonia. Always prominent in medical organization work and zealous for the advancement of his profession, he will be sadly missed from the medical ranks of his state. Dr. Joyner was born in Little Rock, Ark., in 1867, being seventy-six years of age at the time of his death. He graduated from the University of Arkansas Medical School in 1889, and spent a year in post graduate work at Bellevue Hospital, New York. He was County Physician for Pulaski County, Arkansas, in 1891, and came to New Mexico in 1892, locating in Roswell, where he practiced continuously for forty years. He was the first president of the Chaves County Medical Society, former president of the New Mexico Medical Society, a fellow of the Amercian Medical Association, and for many years a member of the New Mexico Board of Medical Examiners.

CHRISTIAN H. RISSER

(Payson, Ariz.)

The death of Dr. C. H. Risser, for twenty years the only physician in Payson, Ariz., sees the passing of another pioneer medical practitioner in that state. Dr. Risser was born in 1879, graduated from St. Louis University School of Medicine in 1909, coming to Arizona the following year. He was located in Tempe, Ariz., for a year or two, and then settled in Payson, an isolated community in the cattle country, where he practiced since. He came to Tempe to visit relatives and was taken with a virulent type of pneumonia, living only a few days. Death occurred on Nov. 4th.

HARLIN A. HARRIS

(Guadalajara, Mexico)

One of the eminent medical men of Mexico was lost in the death of Dr. R. A. Harris, Chief Surgeon of the Southern Pacific of Mexico Railroad, which occurred on July 7th. The cause of death was angina pectoris. Dr. Harris was comparatively young, being 52 years of age. He graduated from Syracuse (N.Y.) University College of Medicine in 1903, and has been located in Mexico for many years. He succeeded Dr. E. C. Houle, a few years ago, in the office which he was holding at the time of death. He was located at Guadalajara, Jalisco, Mexico.

THE EL PASO COUNTY MEDICAL SOCIETY

October 9, 1933

(Reported by Dr. Leslie M. Smith, Secretary)

1. Acute Nephritis: Harry Leigh, M. D., El Paso, Texas.

2. Presentation of a Diagnostic Case: Geo. Turner, M. D., El Paso, Texas.

3. Lung Abscess: S. D. Swope, M. D., El Psao, Texas.

The El Paso County Medical Society met Monday, October 9, 1933, at 8 p. m. at Hotel Hussman.

Dr. Harry Leigh presented the case history of a fatal case of acute hemorrhagic nephritis in a child. Dr. George Turner presented the autopsy findings with photomicrographs. The case was further discussed by Dr. N. H. Keller.

Dr. George Turner reported a case of serous accumulation in pleural cavity. After withdrawal of the fluid, there was no definite evidence of malignancy, but lymph gland removed from the chest wall showed adeno-carcinoma. Dr. W. W. Waite discussed the case.

Dr. S. D. Swope presented a case of lung abscess following a mouth operation. There was a mass in the right chest which gradually enlarged. There was at first a suspicion of carcinoma, but the mass finally broke down and drained through the bronchus. Drs. R. B. Homan, J. W. Laws, W. E. Vandevere, J. L. Green, F. P. Schuster, W. W. Waite, George Turner, and Major Franklin, U. S. A., discussed Dr. Swope's case.

Dr. W. E. McLain was admitted to membership in the society. The secretary read a letter from Dr. Holman Taylor relative to the recent conference on Medical Care of the Indigent. Dr. J. W. Laws stated that there is a possibility of establishing a camp in El Paso for drifters. Dr. Paul Gallagher again tendered his resignation as chairman of the committee in charge of medical examination of R. F. C. workers, and recommended Dr. Thas. Rennick's appointment to the chairmanship. It was moved and seconded that Dr. Gallagher remain on the committee. This motion was passed.

Dr. W. R. Jamieson, chairman of the entertainment committee for the coming meeting of the Medical and Surgical Association of the Southwest, brought up the question of financing the entertainment. A motion by Dr. W. E. Vandevere to charge a registration fee of two dollars for those attending the meeting was seconded and carried. It was included in the motion that the balance of the expense should be paid out of the treasury of the county medical society. Dr. George Turner was appointed as chairman of the financial committee for the Southwestern meeting.

There being no further business the society adjourned at 10 p. m.

THE EL PASO COUNTY MEDICAL SOCIETY

October 23, 1933

(Reported by Dr. C. F. Rennick, Acting Secretary.)

Preliminary report: Original Bone-Brace Operation to Prevent Toe-Drop; F. C. Goodwin, M.D., El Paso.

Use of Addisin in the Treatment of Pernicious Anemia: J. E. Sherman, M.D., El Paso.

The El Paso County Medical Society met Monday, October 23, 1933, at 8 p. m., at Hotel Hussman, Dr. J. J. Gorman presiding.

Dr. Mitchell presented a County Hospital case with typical symptoms of chronic gastric ulcer, including blood in the stomach contents and the stool. There was x-ray and laboratory evidence of chronic duodenal obstruction. Due to the positive Kahn test there was some question of syphilitic gastritis, but the diagnosis of peptic ulcer was finally decided on. The usual medical treatment of alkalies and stomach washes was being administered. Drs. Garrett, Sherman, and Gorman discussed the case.

Dr. Mitchell presented another case of cancer of the head of the pancreas, the patient dying after 12 days in the hospital. Diagnosis confirmed by autopsy. Discussed by Dr. Waite.

Dr. Goodwin presented a paper entitled, "Original Bone-Brace Operation to Prevent Toe-Drop." About twenty-five slides were shown, demonstrating an operation to prevent the toe from interfering during locomotion. The posterior surface of the tibia was removed and "green-sticked" downward, so that the end of the graft terminated in the interval between the heel cord and the os calcis. A groove was made in the posterior bulge in the lower end of the tibia, to permit the distal end of the graft to reach the point where it was desired. Slides showing x-ray of the patients operated on were shown, as well as photographs taken of the foot showing prevention of toe drop by this new operation.

In discussing this paper Dr. Miller mentioned some of the poor results from the Campbell operation and said he looks forward with pleasure to the results of Dr. Goodwin's new operation. The paper was further discussed by Drs. McCamant, Awe, Waite, and Major Kelly.

Dr. J. E. Sherman presented a paper entitled "Use of Addisin in the Treatment of Pernicious Anemia." Dr. Sherman stated that pernicious anemia is a hormone deficiency disease. This hormone is contained in the normal gastric juice. Addisin is prepared by the concentration of the gastric juice of hogs. Cases were shown in which there were remarkable results from even one injection of this preparation. The paper was enthusiastically discussed by Drs. Waite, Rawlings, Werley, Lee, Goodwin, Awe, and Morrison.

Dr. McCamant stated that the incidence and death rate from diphtheria are entirely too high in

this city. He called on the doctors for cooperation in the immunization of all children, stating that if he did not receive this cooperation the Health Department would proceed at once to immunize all children. Dr. Laws made a motion, seconded by Dr. Mott Rawlings, that a committee be appointed to cooperate with Dr. McCamant on the problem of immunization against diphtheria. Motion carried.

The Secretary read a letter from J. Paul Henderson of the County Welfare Board, asking for cooperation of this Society in the work that he is undertaking and for helpful suggesitons that this Society may have to offer in the line of work projects that would benefit the community and furnish employment. The Secretary read another letter from The State Department of Health, Bureau of Vital Statistics, asking the Society for more cooperation in the reporting of births. Las year there were four known births that were not reported in El Paso County.

There being no further business, the Society adjourned at 10:15 p. m.

ARIZONA AUXILIARY NEWS

By MRS. J. C. WILSON
Press and Publicity Chairman, Woman's Auxiliary to Arizona State Medical Association.

First, the State Organizer and Membership Chairman, Mrs. Anna F. Meason, gives you this message:

"The Woman's Auxiliary to the Arizona State Medical Association is making strenuous efforts to enlist the support of every mother, wife and daughter of the doctors of medicine in Arizona into a cooperative and social organization. The work already done is worthy of your earnest consideration. If eligible we solicit your affiliation. The state officers are available at all times to assist in local organization. The purposes, aims and plans of the Auxiliary are available to those who feel the urge to support and cooperate in the worthy and pleasing endeavor of making life worth while in the great fraternity of organized medicine."

Second, we hear from the State Chairman of Hygeia, Mrs. George Truman, as follows:

"We are conducting a campaign to get new subscriptions to Hygeia, or renew old ones through the Auxiliary. As you know, this magazine is published by the American Medical Association. One year subscription is $2.50, two year subscription is $4.00 and a three year subscription is $5.00. As the Auxiliary's commission is fifty per cent on each order, we would be very pleased to have an order from you."

The combined State and Counties meeting which was held in Phoenix on October 20, 1933, was very constructive and enlightening to the large attendance. Mrs. J. R. Morrissy, of Pierre, S. D., told of the organization of a Medical Auxiliary in Austria; Mrs. C. E. Patterson, gave a report of the National Convention and an address was given by our President, Mrs. Swackhamer, who is doing such splendid work to develop our state organization.

Material, including films, for public health program can be obtained from Arizona State Health Department, Phoenix.

Following is a list of officers and chairmen of the State Auxiliary:

President, Mrs. C. R. Swackhamer, Superior.
President-elect, Mrs. J. M. Greer, Phoenix.
Recording Secretary, Mrs. C. C. Craig, Phoenix.
Treasurer, Mrs. W. A. Schwartz, Phoenix.
Corresponding Secretary, Mrs. O. W. Thoeny, Phoenix.

Chairmen:

Press and Publicity, Mrs. J. C. Wilson, Willcox.
Public Relations, Mrs. C. V. Barley, Tucson.
Hygeia, Mrs. George Truman, Mesa.
Organization and Membership, rMs. J. M. Meason, Chandler.
Legislation, Mrs. Harlan Page Mills, Phoenix.
Speakers' Bureau and Program, Mrs. J. M Greer, Phoenix.

County Presidents:

Pima County, Mrs. Ed Hayden, Tucson.
Maricopa County, Mrs. Chas. W. Sult, Phoenix

Directors:

Mrs. Fred G. Holmes, Phoenix.
Mrs. S. H. Watson, Tucson.
Mrs. J. C. Wilson, Willcox.

Advisory Council of Arizona Medical Association:

Dr. N. C. Bledsoe, Tucson.
Dr. Fred G. Holmes, Phoenix.
Dr. Clarence Gunter, Globe.
Dr. C. E. Yount, Prescott.
Dr. C. A. Thomas, Tucson.
Dr. D. F. Harbridge, Phoenix.
Dr. Victor Randolph, Phoenix.
Dr. G. F. Manning, Flagstaff.

BOOK REVIEWS

THE HISTORY OF EPIDEMIOLOGY OF SYPHILIS: The Gehrmann Lectures, University of Illinois, 1933, by Wm. Allen Pusey, A. M., M. D., LL.D., Professor of Dermatology Emeritus, University of Illinois; somestime President of the American Dermatological Association and of The American Medical Association; Springfield, Illinois; Baltimore, Maryland; Charles C. Thomas Co.; 1933.

As I have read medical history, it has been generally supposed that syphilis may have been introduced from the "new" world to the "old" by the men who accompanied Columbus upon his memorable discovery. Pusey brings forth abundant proof of this assumption.

The new disease at the end of the fifteenth century spread with wild fire rapidity and great devastation over Europe. In 1494 Charles VIII of France over-ran Italy. Disease allied with Italy sent the soldier in undisciplined retreat back home and to all parts of Europe. The disease, allied with Italy to defeat Charles VIII and which his soldiers disseminated over Europe, thirty-five years later became known as syphilis. Contemporary

history has no dispute over this part of the story of syphilis. The disease appeared in France, Germany, and Switzerland early in 1495, in Holland and Greece in 1496, in Hungary and Russia in 1499, in India in 1498, in China by 1505 and in Japan by 1569.

While medieval and ancient literatures described various genital diseases, they have no description of a disease which fits syphilis. Then, too, there is the dramatic—tragic spread as detailed above; also there was a severity which could only mean newness. Examination of pre-Columbian literature fails definitely to reveal a description of syphilis under any name, whereas there are numerous references which cannot be questioned in the years following 1492; and Pusey produces records which seem incontrovertible that syphilis was brought by Columbus' crew on their return from their first voyage to Haiti in 1493. Dias de Isla, practising in Barcelona in 1493, left a record which says, "It has pleased divine justice to give and send down upon us unknown afflictions, never seen nor recognized nor found in medical books." The description can refer only to syphilis. Further he writes: "And when they went to give them an account of their voyage and of what they had discovered, immediately the city began to be infected and the aforsesaid disease spread, as was seen later on through long experience."

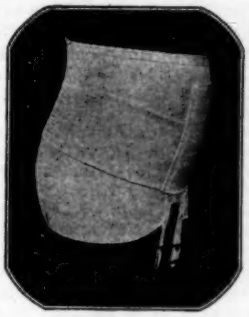
An examination of pre-Columbian interments in Europe fails to find evidence in human bones of pathological changes characteristic of syphilitic changes, whereas the bones discovered in the new world not infrequently disclose such evidence.

Pusey has found frequent references in the sixteenth century to syphilis. Among the prominent writers he has found Paracelsus, Falloppio, Jean Fernel. Ambroise Pare, Valsalva, Lancisi, Jean Astruc, Boerhaave, Morgagni, Sanchez, Benjamin Bell, Ricord, Roliett, Clerc, Rudolph Virchow, Alfred Fournier, Sir Jonathan Hutchison, Metchnikoff, Fritz, Schaudinn, Hoffman, Bordet, Wasserman, Noguchi, Edwin Klebs, P. Uhlenhuth, and Ehrlich, a photograph of each of whom adorns a page. This is the contents of the first two lectures. The third lecture is upon the epidemiology of syphilis. The book is highly interesting. O. H. B.

OPERATIVE SURGERY, by Warren Stone Bickham, M. D. and Phar. M. (Tulane), M. D. (Columbia), F.A.C.S.; Former Surgeon in charge of General Surgery, Manhattan State Hospital, New York; Former Instructor in Operative Surgery, College of Physicians and Surgeons (Columbia University), in the New York Post-graduate Medical School and Hospital, and in the New York Polyclinic Medical School and Hospital; Former Visiting Surgeon to Charity Hospital, New Orleans; Junior Surgeon to Touro Hospital, New Orleans; Fellow of the New York Academy of Medicine; and Calvin Mason Smyth, Jr., B. S., M. D., F.A.C.S., Assistant Professor of Surgery, Graduate School of Medicine, University of Pennsylvania; Surgeon-in-chief Methodist Episcopal Hospital; Visiting Surgeon, Abington Memorial Hospital. Volume VII, containing 765 illustrations; Philadelphia and London; W. B. Saunders Company; 1933; $10.00.

Trademark Registered **STORM** Trademark Registered

Binder and Abdominal Supporter



gives perfect uplift and is worn with comfort and satisfaction. Made of Cotton, Linen or Silk. Washable as underwear. There are three distinct types and many variations of each type.

Picture Shows "Type N"

FOR PTOSIS, HERNIA, PREGNANCY, OBESITY, SACRO-ILIAC RELAXATIONS, HIGH AND LOW OPERATIONS, ETC.

Each Belt Made to Order Ask for Literature

Katherine L. Storm, M.D.

Originator, Owner and Maker

1701 Diamond St., Philadelphia, Pa., U. S. A.

The Tulane University of Louisiana

GRADUATE SCHOOL OF MEDICINE

Approved by the Council of Medical Education, A.M.A.

Postgraduate instruction offered in all branches of medicine. Courses leading to a higher degree have also been instituted.

A bulletin furnishing detailed information may be obtained upon application to the

Dean

Graduate School of Medicine

1430 Tulane Avenue New Orleans, La.

This volume is for the purpose of bringing up to date their system on operative surgery; the autnors compiled six volumes eight years ago.

There are 36 chapters with an index for this volume and an index for all seven volumes. The total number of pages is 849 with 765 illustrations.

The surgery of the colon and the chest had each had considerable new developments, more than other fields.

The first four chapters are of interest to practically all medical men. The first chapter deals with "General Considerations Bearing upon the Surgeon and upon Operative Surgery." The next deals with: "General Considerations Relating to the Patient. Physiologic Bearings in Operative Surgery.' The third chapter is entitled: "General Procedures Employed in Operative Surgery." The fourth is "Surgical Measures Applied Through High-frequency Currents, the Galvano-cautery, X-ray, Radium and Through Chemical Action."

On page two there is a sentence which *every* physician and surgeon should read, re-read and ponder over, towit: "Does anyone doubt that practically every active surgeon has not sacrificed lives which might have been saved, with wider knowledge, with better judgment, with greater skill? And these lives were all their owners had to pay for those errors."

On page three is another statement that might well be read by all practitioners of medicine, namely: "It takes a right brave man to tell a patient he doesn't know what's the matter with him, and a braver man still, to tell him he doesn't know what's best to do for him, and the bravest of all, to tell him at the end of the service, that he has done him more harm than good." Such actualities are not infrequent and should be met by frankness.

Surgical fees are discussed. The burden of the statement is that the surgeon should momentarily, in imagination change places with the patient and then with both viewpoints fix the fee.

Another quotation: "Splitting of fees makes of life's highest calling one of life's lowliest fallings."

Here is a philosophy as well as a surgery.

Certainly those who have the first set of volumes will wish the last. All surgeons should have access to the complete set. It is encyclopedic in the field of surgical technic. O. H. B.

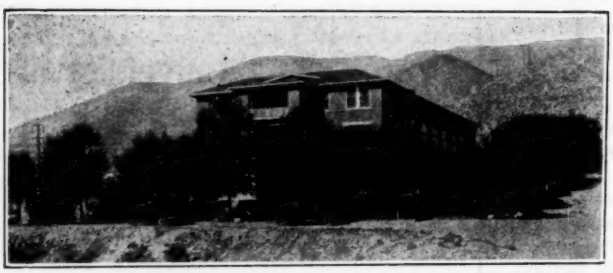
ASTHMA, HAY FEVER AND RELATED DISORDERS. A Guide for Patients by Samuel M. Feinberg, M. D., F.A.C.P., Assistant Professor of Medicine and Attending Physician in Asthma and Hay Fever Clinic, Northwestern University Medical School; Attending Physician Cook County Hospital; Chicago; Illustrated; Lea and Febiger; Philade phia; 1933; $1.50.

The author has attempted a commendable, needed, and certainly a highly difficult task. Just how well he has succeeded I doubt if a physician can say. I submitted the book to an asthmatic of more than average intelligence. Her comments would indicate that the book falls short of doing what she thinks it should do. My own belief, nevertheless, is that the book is a noble effort.

There is no gainsaying that patients with chronic disease, especially those with complex conditions that require endless amounts of study, should have as much understanding as possible of their maladies in order to work intelligently and cooperatively with their physicians.

The allergic individual who knows the contents of this book and who has a phyisician who knows the subject should have a better chance of recovery than if he had not the information.

—O.H.B.



THE LONG SANATORIUM
EL PASO, TEXAS.

Modernly equipped for the care and treatment of tuberculosis in all stages. Rates $15.00 per week and up. Nurses care and medical attention included. $10.00 per week for convalescents. Write for descriptive booklet.

A. D. Long, M. D.
Medical Director

Founded 1896 by Dr. Hubert Work

A modern, newly constructed Sanitarium for the scientific care and treatment of those nervously and mentally ill, the senile and drug addicts.

CRUM EPLER, M. D.
Superintendent

WOODCROFT HOSPITAL, PUEBLO, COLORADO

ANNUAL REPRINT OF THE REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR 1932 Cotn. Price, $1.00. Pp. 104. Chicago: American Medical Association.

The Council on Pharmacy and Chemistry still carries on its work of informing the medical profession concerning the new medicinal products brought out by the various manufacturers of pharmaceuticals. This volume contains the reports on products considered and rejected by the Council during the past year. Among the reports of special interest are: Amertan, an unoriginal mixture of tannic acid and merthiolate in a water soluble jelly, marketed under a proprietary, uninforming name; Antiopin, a mixture of indefinite composition offered under a nondescriptive, therapeutically suggestive name and marketed in a way that may foster the drug habit; Eubetin, another insulin substitute for oral administration marketed under a proprietary uninforming name with unwarranted claims; Ferro-Copral, a mixture of saccharinated ferric oxide, manganese citrate and copper proteinate proposed for use in the treatment of pernicious anemia and marketed under a proprietary name with unwarranted therapeutic claims; Hepatex P.A.F., a liver preparation proposed for intravenous use and marketed under a proprietary and insufficiently descriptive name with no satisfactory evidence of the safety of its recommended intravenous use; Bi-So-Dol, an unscientific "alkalinizing" mixture offered under an uninforming proprietary name with exaggerated and unwarranted claims of therapeutic usefulness; Gan-Aiden, consisting mainly of the well known ethyl aminobenzoate (benzocaine), a preparation of undeclared composition marketed under a noninforming, proprietary name; Myodin, Subidin, and Sanguiodin, unscientific preparations of iodine marketed with unwarranted claims and indefinite, incorrect statements of composition, under proprietary uninforming names and Tonikum-Roche (Now Elixis Arsylen Compositum-Roche), a "shot-gun" proprietary "tonic" marketed with misleading therapeutic claims.

NEW AND UNOFFICIAL REMEDIES, 1933, containing descriptions of articles which stand accepted by the Council on Pharmacy and Chemistry of the American Medical Association on Jan. 1, 1933. Cloth. Price, Postpaid, $1.50. Pp. 498; lvi. Chicago: American Medical Association.

The annual editions of this volume contain all that the busy physician needs to know concerning the newer preparations which he is daily importuned by the detail men of the pharmaceutical manufacturers to use. The remedies listed and described here have been examined and found acceptable by the Council on Pharmacy and Chemistry, the deliberate body charged by the American Medical Association with the performance of this service for the practitioner, who has not the time or means to make the determinations for himself. Among the new preparations admitted during the past year are: Trichlorethylene-Calco, an inhalation anesthetic proposed especially for use in trigeminal neuralgia; Nostal, an additional barbituric acid compound; Decholin and Decholin Sodium, bile salt preparations for use in furctual insufficiency of the liver, the sodium salt being suitable for intravenous use when necessary; Biliposol, Bismo-Cymol, and Iodobismitol, bismuth compounds for use in obtaining the systemic effects of bismuth, especially in syphilis; Triphal, a gold salt proposed for use in the treatment of lupus erythematosus; a number of improved liver preparations for use in the treatment of pernicious anemia; two halibut liver oil preparations of high vitamin A and vitamin D content; and Pentnucleotide, the sodium salts of the pentose nucleotides derived from the ribonucleic acid of yeast,

SEVEN YEARS USE
has demonstrated the value of
THE SURGICAL SOLUTION
of
MERCUROCHROME, H. W. & D.
in
PREOPERATIVE SKIN DISINFECTION

This preparation contains 2% Mercurochrome in aqueous-alcohol-acetone solution and has the advantages that:

Application is not painful.
It dries quickly.
The color is due to Mercurochrome and shows how thoroughly this antiseptic agent has been applied.
Stock solutions do not deteriorate.

Now available in 4, 8 and 16 oz. bottles and in special bulk packages for hospitals.

Literature on request

Hynson, Westcott & Dunning, Inc.
BALTIMORE, MARYLAND

NEW!
DUNKLER URINE TEST KIT
6 TESTS

Dunkler Urine Tests in Compact Case, including reagents for Sugar (Qual.), Albumin (Qual.), Albumin (Quant.), Acetone, Bacterial Infection, and Chronic Interstitial Nephritis with Testometer, only $5.00

All Tests Completed In One-Half To Eight Minutes

This is a scientific, tested product that will save the practitioner valuable time and money with greater accuracy in his urinary analysis. These new reagents require No Boiling, Corrosive Acids or the use of a Microscope. It is a rapid, exact, easy and scientific method for the examination of urine. The simplicity of the procedure and the reliability of the reactions will astound you. The products will not deteriorate with age or climatic changes. The cost per test is about one-half cent.

A. S. ALOE CO.
932 S. Hill St. LOS ANGELES, CAL.

proposed for use in infectious conditions accompanied by a leukopenia or neutropenia.

The book contains general articles, descriptive of the classification under which the various drugs are listed. According to the preface, more or less thorough-going revisions have been made of the articles: Arsenic Compounds; Dyes, Iodin Compounds; Liver and Stomach Preparations; Radium and Radium Salts and Silver Preparations.

SURGICAL PATHOLOGY. By Wm. Boyd, M.D., M.R.C.P. Ed., F.R.C.P. Lond., Dipl. Psych, F R C.S. Professor of Pathology, University of Manitoba, Pathologist to the Winnipeg General Hospital, Winnipeg, Canada.

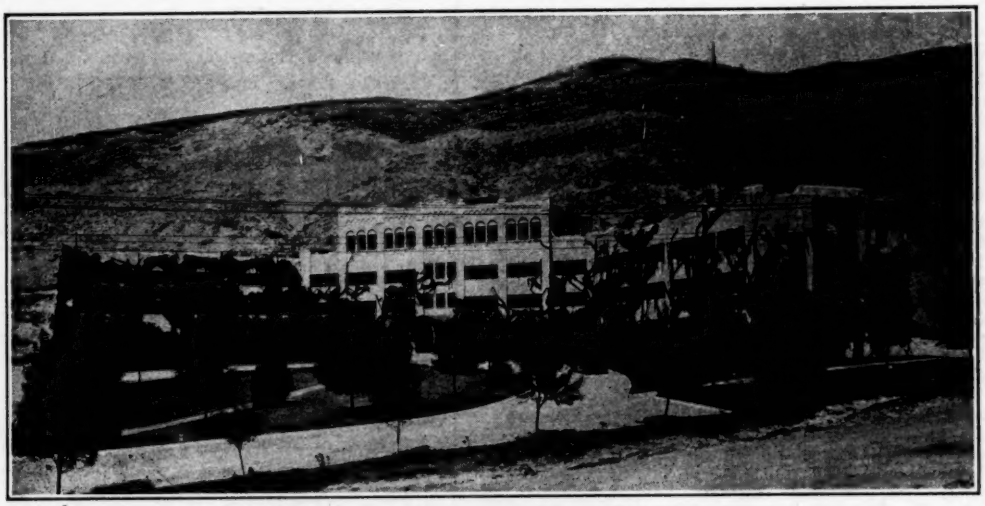
Third edition, thoroughly revised, 866 pages, with 477 illustrations and 13 colored plates. W. B. Saunders Company, Philadelphia and London, 1933. Cloth, $10.00 net.

This volume is a new edition of an excellent text upon an important subject. Much new material has been added, but by condensing other sections the book remains the size of previous editions. Many sections have been rewritten and brought thoroughly up-to-date and present the newest ideas on subjects, such as the etiology of tumors, action of radium on tumors, carcinoma of the mouth and pharynx, acute intestinal obstruction, and many others. Of the entirely new material appearing in this volume may be mentioned the sections on the metabolism of tumors, autolytic peritonitis, high temperature deaths following cholecystectomy, nonobstructive hydronephrosis, and Cushing's syndrome. The chapter on 'The surgeon and the laboratory" is of considerable practical interest to both the surgeon and the clinical pathologist and offers suggestions which should aid in coordinating the work in the specialties. H. P. M.

THE TIDES OF LIFE: The Endocrine Glands in Bodily Adjustment, by R. G. Hoskins, Ph. D., M.D.; Director of Research, Memorial Foundation for Neuro-Endocrine Research, Research Associate in physiology, Harvard Medical School; W. W. Norton & Company, Inc., Publishers, New York.

It is a joy to read a book on endocrinology in which the author recognizes the difference between fact and theory. There has been an enormous amount written on the subject which is pure theory. Valuable as theories are the reader of a book should be able to know whether a statement belong in the category of fact or of theory. Hoskins puts it beautifully on page 227 by saying: "It is axiomatic in science that facts and deductions from facts must be kept in rigidly separate compartments."

The book contains 351 pages divided into 15 chapters. The subject matter of the chapters are as any physician would surmise. The author shows clearly his familiarity with the literature. He has failed to do the ordinary by including a complete bibliography of the works from which he has drawn his data. This would seem to detract from the reference value of the book. The author's use of the



THE HOMAN SANATORIUM
For the Treatment of Tuberculosis
EL PASO, TEXAS

A privately owned, thoroughly and modernly equipped ethical institution of 110 rooms. Heliotherapy, pneumothorax, phrenic nerve and chest surgery, and all other modern methods of treatment.

Write for booklet giving rates and other information.

English language is extremely admirable and expressive and in many places truly beautiful.

There is relatively little to criticise about the book. The reviewer found no misspelled words and no grammatical nor typographical errors. The author has the habit of using "the former" and "the latter" and "this" and "that" to refer to previous statements, which makes it frequently necessary for the reader to go back and read a previous paragraph to understand the one he may wish to read. In the bottom line of page 212 the comma and the word "too" are superfluous if not a bit misleading. It is perhaps small to mention such minor criticisms of such a magnificent work.

The publishers art is excellently portrayed.

O. H. B.

ESTROGENIC SUBSTANCES: THEELLIN. — The Council on Pharmacy and Chemistry reports that the introduction into therapeutics of commercial preparations with active estrogenic properties marked what appeared to be a new phase in the treatment of female sexual disorders. These new preparations, unlike those with which the market had been replete for many years, produced striking and concordant effects when injected into animals. Their clinical use spread widely and rapidly, and observations accumulated in profusion. But the early enthusiasm began to wane as it became evident that the therapeutic usefulness of the estrogenic preparations had been greatly overestimated; the effects of injections in human beings were in the great majority of cases neither striking nor concordant; and in those cases, too few, unfortunately, in which an effort was made to control the observations carefully, the results appeared to be even less notable. Despite their extensive employment, the indications for the clinical use of Theelin and related products are at the present time only imperfectly understood. With a view to establishing, if possible, the indications for and limitations of endocrine therapy of this type, a comprehensive review on this subject was prepared and adopted by the Council for publication. Theelin and related preparations have been used in practically all the special ills the human female "is heir to;" even the male has not escaped. The results in general have been quite disappointing, despite the abundance of case reports available, numbering by now several thousand. The place of Theelin and related products in gynecologic therapy remains for the future to decide. Great caution is necessary in th use of these preparations and greater caution in making deductions from it. The indiscriminate use is likely to do more harm than good. not only because of the effect of the preparations themselves but also because general therapeutic measures intended to aid the organism in restoring its own equilibrium are likely to be neglected. The Council believes that the future of endocrine therapy in the sexual sphere appears quite promising; but so far enthusiasm in this case has in large part seriously interfered with clinical judgment; the clinical use has kept far ahead of the laboratory data; controlled observations have been few indeed. It is time to call attention to the fact that most of the basic facts should first be worked out in the laboratory before they are tried in the clinic. (Jour. A.M.A., April 29, 1933, p. 1331).

THE FEMALE SEX HORMONES. Until recently, therapy employing so-called female sex hormones was limited largely to the use of desiccated ovarian products and various extracts without demonstrated value. Today the physician has available preparations of demonstrable potency in animals and of possible usefulness in human beings. Two, isolated in crystalline form, have been given the non-proprietary designations theelin and theelol. The Council on Pharmacy and Chemistry has published a comprehensive analysis of the status of female sex endocrine therapy, particularly with estrogenic preparations. In few branches of physiologic research has experimental work progressed as rapidly as in this field, but clinical observations have not kept pace. Unfortunately, many of the products were submitted to uncontrolled clinical observations; inevitably this reacted to the discredit of endocrine therapy in ovarian and related disorders. Research with estrogenic substances, as the report of the Council on Pharmacy and Chemistry brings out, has been hampered by the confusion resulting from inability to compare the potencies of preparations used in different laboratories. Recently, however, the Health Organization of the League of Nations has undertaken to establish an international standard for such products. It will, of course, take time for the work of the League's committee to reach consummation; but the action is a commendable step in the direction of greater comparative accuracy. (Jour. A.M.A., April 29, 1933, p. 1342).

BORDEN'S EVAPORATED MILK

Borden's Evaporated Milk, which is now enjoying such a great vogue in infant feeding, is manufactured only from pure, full cream milk from healthy, inspected cattle in the richest dairy regions of America.

"This product," says a scientific pamphlet, which is accepted by the Committee on Foods of the American Medical Association, "precisely fulfills the exacting requirements of safety, digestibility and assimilability, uniformity, stability, and nutrient quality demanded by the physician for the infant feeding formula."

That this is so has been demonstrated by many clinical tests on large groups of babies, as well as by the experience of physicians with innumerable individual cases. Of particular interest is a recent study by Jeans and Stearns (Am. Jour. Dis. Childr. 46:69, July, 1933) showing that the retention of nitrogen, calcium, and phosphorus by infants on

evaporated milk are approximately the same as those of infants fed on undiluted acidified fresh milk.

Evaporated milk, says Tobey in his new book, "Milk, The Indispensable Food" (Olsen, 1933), is the most digestible form of milk; this author also points out that the important vitamins A. D, E, and G are not appreciably affected when milk is evaporated, although there may be a slight loss of vitamin B and destruction of vitamin C. Since these vitamins are easily replaced in the diet by the supplementary foods routinely give to all babies, such as orange juice, this slight loss is of no practical significance and is more than compensated for by the many other advantages of a product such as Borden's Evaporated Milk.

WHICH COD FISH SHOULD BE USED FOR MEDICINAL COD LIVER OIL?

"Zilva and Drummond[1] were the first to draw attention to the high vitamin value of oil prepared in Newfoundland, an observation that has been repeatedly confirmed."

"The figures for the estimations of vitamin A show that . . . . the Norwegian oils are the lowest, followed in increasing order by the Scottish, Icelandic and Newfoundland oils."

"The vitamin D tests also reveal the relatively high value of Newfoundland oil." "The northern fish grow more slowly than those frequenting the southern shores" (e. g., Newfoundland—due probably to the warmer temperature of the Gulf Stream)—from *"The Relative Values of Cod Liver Oils from Various Sources"* by J. C. Drummond and T. P. Hilditch.

Mead's Newfoundland Cod Liver Oil and Mead's 10 D Cod Liver Oil withViosterol are made from Newfoundland codfish exclusively.

1 J. Soc. Chem. Ind., 1923, 42, 185,205.

OFFICE FORMS
for the PHYSICIAN

A. C. TAYLOR PRINTING COMPANY
publishers of
SOUTHWESTERN MEDICINE
121 E. Jefferson St. Phoenix, Arizona

Is This Journal Worth While?

Four organizations support this journal and at their annual meetings, usually may be heard some expression of approval of this journal. This is pleasant, but YOU can do something more valuable for us than words. We derive the revenue which makes this journal possible mainly from the advertisements. The firms which advertise herein expect support from the members of the organizations owning the journal. That is reasonable, and a proper sense of honor will cause us to reciprocate, whenever possible. Not all firms worth patronizing advertise in this journal, BUT THOSE WHO DO SUPPORT US ARE WORTHY OF OUR SUPPORT. More advertising is rejected than is accepted, and you may rest assured that whatever is advertised herein is honestly presented and the statements made may be accepted as true.

Patronize Our Advertisers!